Paper – 14 – Strategic Financial Management

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Full Marks: 100 **Time allowed: 3 hours**

Answer Question No. 1 which is compulsory and carries 20 marks and any five from Questions No. 2 to 8.

Section A [20 marks]

Answer the following questions:

1. Choose the correct option among four alternative answers. (1 mark for correct choice, 1 mark for justification.) [10 ×2 = 10]

(i) An investor buys a call option contract for a premium of ₹ 200. The exercise price is ₹ 20 and the current market price of the share is ₹ 17. If the share price after three months reaches ₹ 25, what is the profit made by the option holder on exercising the option? Contract is for 100 shares. Ignore the transaction charges.
(A) ₹ 200
(B) ₹ 250
(C) ₹ 300
(D) ₹ 350

(ii) One year euro interest rate is 3% (compounded quarterly)
One year rupee interest rate is 6 % (compounded quarterly)
The forward six months exchange rate is ₹58.82/euro
According to interest rate parity, the spot exchange rate is:
(A) ₹57.96
(B) ₹58.10
(C) ₹58.60
(D) None of the above

(iii) ANGEL LTD, an export customer who relied on the inter bank rate of ₹/$ 46.50/10 requested his banker to purchase a bill for USD 80000. What is the rate to be quoted to ANGEL LTD if the banker wants a margin of 0.08?
(A) ₹46.40
(B) ₹46.46
(C) ₹46.60
(D) None of the above.

(iv) The net profit margin, total assets turnover ratio and total assets to networth of a company are 5%, 1.5 and 2.0 respectively. The ROE of the company will be
(A) 5%
(B) 15%
(C) 7.5%
(D) 10%

(v) Following information is available regarding a mutual fund:

Return	**13**
Risk (σ)	**16**
Beta (β)	**0.90**
Risk free rate	**10**

Sharpe ratio and Treynor's ratio are:

(A) 0.17, 3.33
(B) 0.10, 3.33
(C) 0.25, 3.33
(D) 0.19, 3.33

(vi) Calculate P/E ratio, if dividend payout ratio is 55%, ROE is 16% and the required rate of return is 14%.

(A) 8.09
(B) 8.64
(C) 9.12
(D) 9.45

(vii) The co-efficient of co-relation between returns of SPARK LTD and SENSEX is 1.10. The expected returns on the stock of Spark and Sensex are 18% and 14.37% respectively. The return on 182 day T –Bill is 6.31%. What would be standard deviation of the returns of Spark if the standard deviation of Sensex's return is 17%

(A) 20.12%
(B) 22.41%
(C) 26.46%
(D) Insufficient data.

(viii) The stock is currently selling at ₹270. The call option to buy the stock at ₹265 costs ₹12. What is the Time Value of the option?

(A) ₹13
(B) ₹5
(C) ₹17
(D) ₹7

(ix) The spot Value Of Nifty is 4430. An investor bought a one month Nifty for 4410 call option for a premium of ₹12. The option is:

(A) In the money
(B) At the money
(C) Out of the money
(D) Insufficient data.

(x) LEENZA LTD. Currently pays a dividend of ₹4 per share that is expected to grow at rate of 10% for the next year after which it is expected to grow at rate of 7% forever. What value would you place on the stock of this company if a rate of 15% return is required? (Round off your answer to the nearest integer).(Given PVIF(15% 1 year=0.8696)

(A) ₹53.05
(B) ₹55.00
(C) ₹58.10
(D) None of the above.

Answer:

(i) (C) — ₹ 300:

Assuming in call option, the total outgo = Premium + Exercise Price = ₹ 200 + (₹ 20×100) = ₹ 2,200.

After 3 months, if the share price is ₹ 2,500, the net profit = ₹ 2,500 – ₹ 2,200 = ₹ **300**.

(ii) (A) ₹ 57.96

58.82/Spot rate=$[(1+(.06/4)]^2$ /$[(1+(.03/4)]^2$

Spot rate=$58.82*(1+.03/4)^2$ *$1/(1+.06/4)^2$

=58.82*(1.015)*(1/1.030)=₹57.96

(iii) (C) ₹46.60

Profit margin of 0.08% is deducted from bid rate.

That is 46.50*.0008=₹0.04

Spot bid rate=₹46.50-.0.04=₹46.46.

(iv) (B) 15%

ROE= PAT/Sales*Sales/Total Assets* Total Assets/Networth

Therefore ROE= 0.05*1.5*2=0.15 or 15%

(v) (D) 0.19, 3.33

Sharpe's ratio = $(R_P - R_F) / \sigma$ = [13 -10] / 16 = 0.19

Treynor's ratio = $(R_P - R_F) / \beta$ = [13 -10] / 0.90 = 3.33

(vi) (A) 8.09

Growth rate= Retention ratio*ROE=0.45*0.16=0.072

P/E=0.55/(0.14-0.072)=0.55/0.068=8.08

(vii) (B) 22.41%

0.18=Rf+β(Rm-Rf)

0.18=0.0631+β(0.1437-0.0631)

Or,0.0806β=0.1169

Or,β=0.1169/0.0806=1.45

Again $\beta=\sigma i P_{im}/\sigma_m$

Or $\sigma_i= \beta\sigma_m/P_{im}$=(1.45*0.17/1.1) =22.42%

(viii) (D) ₹7

Time Value of Option = Call premium-Intrinsic Value=(₹265+₹12)-(₹270)=₹7

(ix) (A) In the money

Spot Value > Exercise Price/Strike Value=> In the money

₹4430>₹4410

(x) (B) ₹55.00

The present value of dividend stream to an investor is given as:--

₹4(1.10)*0.8696=₹3.826

D2=₹4*1.10*1.07=₹4.708

Price share=4.708/(0.15-0.07)*0.8696+₹3.826=₹55.00

Section B [80 marks]

Answer any five questions from question nos. 2 to 8. Each question carries 16 marks.

2(a) PQR LTD. is considering a project in U.S.A., which will involve an initial investment of US $ 1,40,00,000. The project will have 5 years of life. Current spot exchange rate is ₹60.30 per US $. The risk-free rate in USA is 7% and the same in India is 8%. Cash inflows from the project are as follows:

Years	1	2	3	4	5
Cash inflows (US $)	18,00,000	24,00,000	30,00,000	50,00,000	60,00,000

Calculate the NPV of the Project using foreign currency approach. Required rate of return on the Project is 15%.
[Given: PV factors for 13.93% (for 5 Years) are 0.878, 0.770, 0.676, 0.594, 0.521]

2(b) A company is considering two mutually exclusive projects X and Y. Project X costs ₹3,00,000 and Project Y ₹3,60,000. You have been given below the NPV and probability distribution for each project:

Project		Project Y	
NPV Estimate (₹)	Probability	NPV Estimate (₹)	Probability
30,000	0	30,000	0.2
60,000	0	60,000	0.3
1,20,000	0	1,20,000	0.3
1,50,000	0	1,50,000	0.2

Required:
(i) Compute the expected Net Present Value (NPV) of Projects X and Y.
(ii) Compute the risk attached to each project i.e. Standard Deviation of each probability distribution.
(iii) Which Project do you consider more risky?
(iv) Compute the Profitability Index of each Project. [6+10 marks]

Answer:

2(a) Computation of Discount rate:

Note: It is assumed that the required rate of return of 15% (Risk adjusted rate) is for rupee inflows.

[1 + Risk adjusted rate] = (1 + Risk-free rate) × (1 + Risk premium for the project)

So, [1 + 15 %] = (1 +8 %) × (1 + Risk premium);

Or, (1 + Risk premium) = [1.15 /1.08] ; Or, Risk premium = **6.48** %

Therefore, Risk adjusted discount rate for US dollar flows is:

[1 + Risk adjusted discount rate] = [1 + US $ Risk-free rate] × [1 + Project risk premium]
= [1+ 7 %] x [1 + 6.48 %] = [1.07 x 1.0648] = 1.1393

So, Risk adjusted discount rate = [1.1393 - 1] = 0.1393 = **13.93 %.**

2(b) (i) Project X:

NPV Estimate (₹)	Probability	NPV × Probability (₹)	Deviation from Expected NPV i.e. ₹ 90,000	Square of the Deviation (₹)	Square of the Deviation × Probability (₹)
30,000	0.1	3,000	(-) 60,000	36,00,000,000	3,60,000,000
60,000	0.4	24,000	(-) 30,000	9,00,000,000	3,60,000,000
1,20,000	0.4	48,000	30,000	9,00,000,000	3,60,000,000
1,50,000	0.1	15,000	60,000	36,00,000,000	3,60,000,000
Expected NPV		90,000			14,40,000,000

Project Y:

NPV Estimate (₹)	Probability	NPV × Probability (₹)	Deviation from Expected NPV i.e. ₹ 90,000	Square ofthe Deviation (₹)	Square ofthe Deviation × Probability (₹)
30,000	0.2	6,000	(-) 60,000	36,00,000,000	7,20,000,000
60,000	0.3	18,000	(-) 30,000	9,00,000,000	2,70,000,000
1,20,000	0.3	36,000	30,000	9,00,000,000	2,70,000,000
1,50,000	0.2	30,000	60,000	36,00,000,000	7,20,000,000
Expected NPV		90,000			19,80,000,000

(ii) The expected Net Present Value (NPV) of Projects X and Y is ₹ **90,000 each.**

Standard Deviation=√square of standard deviation*probability
In case of Project X: Standard Deviation =√1440,000,000=₹37947
In case of Project Y: Standard Deviation=√1980,000,000=₹44497

(iii) Co-efficient of variation = Standard deviation / Expected NPV
In case of Project X: Co-efficient of variation = ₹ 37,947 / ₹ 90,000 = **0.42**
In case of Project Y: Co-efficient of variation = ₹ 44,497 / ₹ 90,000 = **0.50**
Project Y is riskier since it has a higher Co-efficient of variation

(iv) Profitability Index = (Discounted cash inflow/Discounted cash outflow)
In case of Project X: Profitability Index = (₹ 90,000 + ₹ 3,00,000)/₹ 3,00,000 = **1.30**
In case of Project Y: Profitability Index = (₹ 90,000 + ₹3,60,000)/₹ 3,60,000 = **1.25**

3(a) (I) The following information is extracted from STP Mutual Fund Scheme:
Asset Value at the beginning of the month- ₹65.78
Annualised return -15%
Distributions made in nature of Income and Capital Gain (per unit respectively)- ₹0.50 and ₹0.32
You are required to:
(i)Calculate the month end assets value of the mutual fund scheme (answers should be limited to 2 decimal places).
(ii)Comment on month end NAV briefly.

(II) A mutual fund had a Net Asset Value (NAV) of ₹ 620 at the beginning of the year. During the year a sum of ₹ 5 was distributed as dividend besides ₹ 3 as capital gains distribution. At the end of the year, NAV was ₹ 700. Calculate the total return for the year.

3(b) The following particulars are furnished about three Mutual Fund schemes P, Q and R:

Particulars	Scheme P	Scheme Q	Scheme R
Dividend distributed (₹)	1-75	—	1-30
Capital appreciation (₹)	2-97	3-53	1-99
Opening NAV (₹)	3200	27-15	23-50
Beta	1-46	1-10	1-40

Ascertain the Alpha of the three schemes and evaluate their performance, if Govt, of India Bonds carry an interest rate of 6-84% and the Nifty has increased by 12-13%.

[(6+2)+8]

Answer: 3(a)(I)

(i) Return on Mutual Fund investment:

$[(NAV_{end}-NAV_{beginning})+Dividend]/NAV_{beginning}*12/n*100$

$NAV_{beginning}$ =65.78

Dividend=Distributions in nature of Income and Capital gain=0.50+0.32=0.82

Return=15%

Substituting the values,

$(NAV_{end}-65.78)+0.82/65.78*12/1*100= 15$

Or, NAV end-64.96/65.78*12/1*100=15

Or, (NAVend-64.96)*18.24=15

Or, 18.24 NAV_{end}-1184=15

Or, 18.24 NAV_{end}=1184+15

Or, NAV_{end}=65.78

(ii) Since the beginning and end NAV are same, What ever appreciation in mutual fund portfolio, the same has been distributed.

(II) Computation of Return:

Capital appreciation = Closing NAV p.u Less Opening NAV p.u. =₹ (700 – 620) = 80

Returns = [Cash Dividend + Capital appreciation + Capital gains]/opening NAV

= ₹ (5.00 + 8.00 + 3.00]/ ₹620 = 2.58%

3(b)

Particulars		Scheme P	Scheme Q	Scheme R
Dividend distributed	(₹)	1.75	-	1.30
Add: Capital appreciation	(₹)	2.97	3.53	1.99
Total return (A)	(₹)	4.72	3.53	3.29
Opening NAV (B)	(₹)	32.00	27.15	23.50
Actual return (A)/(B) = (C)		14.75 %	13.00%	14.00%
Beta (D)		1.46	1.10	1.40
Expected return under CAPM:				
RF+BP(RM-RF) = (E)		14.56 %	12.66 %	14.25%
Jensen's Alpha = (C) - (E)		0.19 %	0.34 %	(-) 0.25%
Ranking		2	1	3

Evaluation: Schemes P and Q have outperformed the Market portfolio NIFTY, whereas Scheme R has under-performed in comparison with NIFTY.

4(a) Given below are the Market Value of Equity and their Unlevered Beta in respect of 4 SBUs of a company:

SBUs	Market Value of Equity (₹ in crore)	Unlevered Beta
A	100	1.00
B	100	1.10
C	150	1.50
D	150	2.00

The company has ₹ 50 crores of Outstanding Debt. Required:

(i) Estimate the Beta for the company as a whole. Is this Beta going to be equal to the Beta estimated by regressing past returns of the company against a market index? Give suitable reasons for your answer.

(ii) If the Treasury Bond rate is 8%, estimate the cost of Equity of the company. Which cost of Equity would you use to value the SBU "D"? The average market risk premium is 7%.

4(b) If beta (β) is 1.50; Rf (risk free returns) is 6%; and Rm (market return) is 12%' what should be the return on the share (Rj) with beta as given above? If the alpha value is +1.5, what would be corresponding actual returns from the stock? What is the significance of Alpha in the investment market?

[10+6 marks]

Answer:

4(a) (i) Computation of Company Beta:

SBU	Market value (₹ in crores)	Weight	Unlevered Beta	Product Beta
A	100	0.20	1.00	0.20
B	100	0.20	1.10	0.22
C	150	0.30	1.50	0.45
D	150	0.30	2.00	0.60
Total	**500**	**1.00**		**1.47**

Beta measures the volatility of the company's stock returns against a broad-based market portfolio. In the above case, the beta is calculated for four SBUs and not a broad-based market portfolio. Hence, beta calculations will not be the same, as such.

Beta of the levered firm B(L) = Beta of Unlevered firm B(U) × [(Equity + Debt) / Equity]

= 1.47 × [(500+ 5 0) / 500] = **1.617**

Market Index relationship : This levered beta of 1.617 will be equal to the beta estimated by regressing returns on the company's stock against a market index. The reasons are as under:

- The beta of a security is a measure of return for the systematic risk of that security, relative to the market, i.e. its Systematic risk.
- A portfolio generally consists of a well-diversified set of securities.
- The systematic risk cannot be diversified away, and hence, the beta of a portfolio is the value-weighted beta of the securities constituting the portfolio.
- The beta of a portfolio depicts the systematic risk (i.e. Non-Diversifiable Risk) of the portfolio itself.

(ii) Cost of Equity for the company = [(Return of risk-free securities) + (Market Risk Premium × Beta)]

= 8% + (7 % × 1.617)= 0.19319 = **19.32%**

Cost of Equity for SBU "D" = 8 % + (7 % × 2.00) = 22 %.

For valuing the SBU "D", K_E of 22 % would be used.

(b) If beta (β) is 1.50. Rf=6.00% and Rm=12.00%, E(Rj) as per CAPM

= Rf+β(Rm- Rf)=6+1.5*(12-6)=15%

Here alpha =Actual return minus Expected or required return as per CAPM

Therefore if Alfa=+1.5, since E(Rj) =15%, Actual Return=16.5%

Whenever Alpha is positive, it means the stock gives higher return than what is required as per CAPM. Therefore, we retain stock and when Alpha is negative, we sell stock. When it is zero, it means that the stock gives return as required under CAPM, and therefore we are indifferent.

5 (a) PPT LTD. Exports edible oils to Middle-East and African countries. In June the company exported an consignment worth $5 million to Zambia. The payment for the same is expected to realize during the month of September. The company has entered into an option forward contract for delivery of $5 million over the month of September.

The market quotes on June 30 at the time of entering into the contract were as follows:

June 30, Spot	**₹ /$**	**47.05/08**
Forward	**1 month**	**23/25 paise**
	2 month	**47/49 paise**
	3 month	**70/72 paise**

On September 2017, the company approached the bank for extension of the contract by another two months that is for delivery during the month of November.
The market quotes on September '2017 were as follows:

Spot	**₹ /$**	**47.58/60**
Forward	**1 month**	**18/20 paise**
	2 month	**37/39 paise**
	3 month	**55/57 paise**

On November '2017, the company approached the bank to cancel the forward contract. The exchange rates as on November '2017 were as follows:

Spot	**₹/$**	**47.97/99**
Forward	**1 month**	**16/18 paise**
	2 month	**33/35 paise**

You are required to calculate:

(i) The forward rate to be quoted on June 30.

(ii) The exchange rate to be quoted by the bank on September '2017 for the extension of the contract.

(iii) The amount of cash flows due to extension of the contract.

(iv) The exchange rate at which the forward contract to be cancelled on November 2017.

(v) The amount of cash flows due to cancellation of the contract.

(Ignore FEDAI margin for merchant quotes.)

5(b) A Petrochemical Plant needs to process 20,000 barrels of oil in three months' time. To hedge against the rising price the plants needs to go long on the futures contract of crude oil. The spot price of crude oil is ₹ 2,925 per barrel, while futures contract expiring three months from now is selling for ₹ 3,300 per barrel. By going long on the futures the petrochemical plant can lock in the procurement at ₹ 3,300 per barrel. Assuming the size of one futures contract of 100 barrels, the firm buys 200 futures to cover its exposure of 20,000 barrels.

Find out the price that would be payable under two scenarios of rise in price to ₹ 3,600 or fall in price to ₹ 2,700 per barrel after three months. [10+6 marks]

Answer: 5(a)

PPT LTD.

(i) The company obtained a forward cover for its receivable of US $5 million on June 30, for delivery in September.

The Forward rate to be quoted is:	₹47.05
Add: 2 months premium since	₹ 0.47
The Dollar is at premium	₹47.52

(ii) The exchange rate to be quoted on September for delivery November is ₹ (47.58 + 0.37): ₹47.95.

(iii) On September 01, the company approach for extension by 3 month. The request of the company is considered by canceling at one month forward selling rate, that is ₹47.80 (47.60 +.20).

The amount of cash Flow due to extension of the Contract is as follows:

Bank buys Dollars under original contract at:		₹ 47.52
Bank sells under cancellation at:		₹ 47.80
Difference payable by the company is per	$	₹ 0.28

Amount of CASH FLOW due to extension of the contract is:

₹ 0.28 x 5000000 = ₹14.00 lakh.

(iv) The Company approached for cancellation on November; 01 which means only cancellation by one month. The contract would be cancelled at one month forward selling rate prevailing on the date of cancellation.

That is ₹47.99 + premium ₹0.18 = ₹48.17

(v) The amount of CASH FLOW due to cancellation of Forward Contract is as follows:

Bank buys under original contract at	₹47.95
Bank Sells on cancelation:	₹48.17
Amount payable by the company is Per $	₹0.22

Total cash flow due to cancellation is ₹11.00 lakhs.
(5000000 x 0.22)

5(b)

Price after 3 months	₹ 2700/barrel	₹ 3600/barrel
Actual purchase price	2700	2400
Bought future at	3300	3300
Sold future at	2700	3600
Profit/Loss on future	-600	+300
Effective Price	3300	3300
Quantity of crude oil to be Hedge	(2700+600)	(3600 – 300)

Size one future contract 100 barrel
Number of future contract 20,000 ÷ 100 = 200

6 (a) On 1st April, 3 months interest rate in the US and Germany are 6.5 percent and 4.5 percent per annum respectively. The $/DM spot rate is 0.6560. What would be the forward rate for DM for delivery on 30th June?

6 (b) During a year the price of British Gilts (face value £100) rose from £105 to £110, while paying a coupon of £8. At the same time the exchange rate moved from $/£ of 1.80 to 1.70. What is the total return to an investor in USA who invested in this security?

[8+8 marks]

Answer:

6(a) Interest Rate parity Theorem – The theorem states that in equilibrium the difference in interest rates between two countries is equal to the difference between the forward and spot rates of exchanges. The mathematical formula representing the theorem is given below:

$$\frac{i_A - i_B}{1 + i_B} = \frac{F_0 - S_0}{S_0}$$

Where,

i_A = Interest rate of US 6.5% or 0.065

i_B = Interest rate of Germany 4.5% or 0.045

F_0 = Forward rate at the end of one year

S_0 = Spot rate 1 $ = 0.6560 DM

$$\frac{0.065 - 0.045}{1 + 0.045} = \frac{F_0 - 0.6560}{0.6560}$$

$$\frac{0.02}{1.045} = \frac{F_0 - 0.6560}{0.6560}$$

$0.02 \times 0.6560 = (1.045 \times F_0) - (1.045 \times 0.6560)$

$0.01312 = 1.045\ F_0 - 0.68552$

$1.045\ F_0 = 0.68552 + 0.01312$

$1.045\ F_0 = 0.69864$

$F_0 = 0.69864/1.045 = 0.66855$

Forward rate after 12 months = 0.66855

Forward premium p.a.

= Forward rate – Spot rate = 0.66855 – 0.6560 = 0.01255

Forward premium for 3 months = 0.01255/4 = 0.003137

Forward rate for 3 months for delivery on 30th June

= Spot rate + 3 months forward premium = 0.6560 + 0.003137 = 0.6591

Alternatively,

Particulars	USD	DM
Spot	0.6560	1.000
Interest rate p.a	6.5%	4.5%
Interest for 91 days	0.0106	0.0112
Amount after 91 days	0.6666	1.0112
Therefore, Forward rate (0.6666/0.6592)	0.6666	0.6592 1.0112

Alternatively,

$$\text{Forward rate} = \frac{0.6560 \times [1 + (0.065 \times \frac{91}{365})]}{1 + (0.045 \times \frac{91}{365})} = 0.6592$$

6(b) The investor is in USA. She will have dollars which she will exchange in pounds, these pounds will be invested in British Gilts. (Gilts mean government based security).

Let the amount to be invested is 1,000 USD.		Pounds
Investment in pounds @ one pound = 1.8 dollars: 1,000/1.8		555.55
Not of securities @ 105 pounds = one security 555.55/105 = 5.29		
Coupon on security for one year @ 8 pounds per security 5.29 x 8		42.32
Capital gain @ 5 pounds per security for 5.29 security 5.29 x 5		26.45
Total pounds had by investor at the end of the year		624.32
Conversion into dollars @ 1.7 dollars per pound 624.32 x 1.7		1,061.344
Less: Initial investment in dollars		1,000.000
Net gain		61.344
Net gain in %	61.44/1,000	6.13%

7(a) A company has received 3 proposals for the acquisition of an asset on lease costing Rs. 1,50,000.

Option I : The terms of offer envisaged payment of lease rentals for 96 months. During the first 72 months, the lease rentals were to be paid @ Rs. 30 p.m. per Rs. 1,000 and during the remaining 24 months @ ₹. 5 p.m. per ₹1,000. At the expiry of lease period, the lessor has offered to sale the assets at 5% of the original cost.

Option II : Lease agreement for a period of 72 months during which lease rentals to be paid per month per ₹ 1,000 are ₹ 35, ₹ 30, ₹ 26, ₹ 24, ₹ 22 and ₹ 20 for next 6 years. At the end of lease period the asset is proposed to be abandoned.

Option III : Under this offer a lease agreement is proposed to be signed for a period of 60 months wherein a initial lease deposit to the extent of 15% will be made at the time of signing of agreement. Lease rentals @ ₹ 35 per ₹ 1,000 per month will have to be paid for a period of 60 months on the expiry of leasing agreement, the assets shall be sold against the initial deposit and the asset is expected to last for a further period of three years.

You are required to evaluate the proposals keeping in view the following parameters :

a. **Depreciation @ 25%**
b. **Discounting rate @ 5%**
c. **Tax rate applicable @ 40%**

The monthly and yearly discounting factors @ 15% discount rate are as follows :

Period	1	2	3	4	5	6	7	8
Monthly	0.923	0.795	0.685	0.590	0.509	0.438	0.377	0.325
Yearly	0.869	0.756	0.658	0.572	0.497	0.432	0.376	0.327

7(b) Mr. X has the following portfolio of four shares:

The risk free rate of return is 7% and the market rate of return is 14%. Determine the portfolio beta and return.

Name	Beta	Investment ₹ Lakhs.
A Ltd.	0.45	0.80
B Ltd.	0.35	1.50
C Ltd.	1.15	2.25
D Ltd.	1.85	4.50

[10 + 6 marks]

Answer:

7(a) Note: We generally use annual discounting factors. However, if the loan/lease payments are made monthly and the annual rate is given, we find the monthly rate first. Thus, if the annual discounting rate is 15%, then the monthly discount rate is 15/12 = 1.25%. then we find the PV for each month. Thus the first month PV factor would be = $1/(1 + 0.0125)^1$; second month's would be = $1/(1 + 0.0125)^2$ and so on. However, it may not be necessary to do for each month, if the amount payable each month is same. We simply add the monthly PV factors of 12 months and multiply with the amount to get the yearly PV. In this problem the sum of monthly PV factor is directly given as 0.923. The amount for the first part of the problem is = 12x30x150= Rs. 54,000. Therefore, first year PV = 54,000 x 0.923.

It is to be remembered that only lease/loan payments need to be applied with monthly discount factors. Tax benefits on depreciation etc. are available only once a year. Therefore, annual discount factor is relevant.

Option I

[Amount in ₹]

Year	Rentals	Monthly disc. Factor @ 15%	PV of (2)	Tax shelter (2) x 40%	Annual disc. Factor @ 15%	PV of (5)	Net Cash Flow (4 – 7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	54,000	0.923	49,842	21,600	0.869	18,770	31,072
2	54,000	0.795	42,930	21,600	0.756	16,330	26,600
3	54,000	0.685	36,990	21,600	0.658	14,213	22,777
4	54,000	0.590	31,860	21,600	0.572	12,355	19,505
5	54,000	0.509	27,486	21,600	0.497	10,735	16,751
6	54,000	0.438	23,652	21,600	0.432	9,331	14,321
7		0.377	3,393,	3,600	0.376	1,354	2,039
8		0.325	2,925	3,600	0.327	1,177	1,748
End		0.327	2,452	-			2,452
		0.327 is year ending discounting factor					1,37,265

Option II

[Amount in ₹.]

Year	Rentals	Monthly disc. Factor @ 15%	PV of (2)	Tax shelter (2) x 40%	Annual disc. Factor @ 15%	PV of (5)	Net Cash Flow (4 – 7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	63,000	0.923	58,149	25,200	0.869	21,899	36,250,
2	54,000	0.795	42,930	21,600	0.756	16,330	26,600
3	46,800	0.685	32,058	18,720	0.658	12,318	19,740
4	43,200	0.590	25,488	17,280	0.572	9,884	15,604
5	39,600	0.509	20,156	15,840	0.497	7,872	12,284
6	36,000	0.438	15,768	14,400	0.432	6,221	9,547
							1,20,025

Option III

[Amount in ₹.]

Year	Rentals	Monthly disc. Factor @ 15%	PV of (2)	Tax shelter (2) x 40%	Annual disc. Factor @ 15%	PV of (5)	Net Cash Flow (4 – 7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0	22,500	1.000	22,500	-	-	-	22,500
1	63,000	0.923	58,149	25,200	0.869	21,899	36,250
2	63,000	0.795	50,085	25,200	0.756	19,051	31,034
3	63,000	0.685	43,155	25,200	0.658	16,582	26,573
4	63,000	0.590	37,170	25,200	0.572	14,414	22,756
5	63,000	0.509	32,067	25,200	0.497	12,524	19,543
6			0	5,625*	0.432	2,430	-2,430
7			0	4,219*	0.376	1,586	-1,586
8			0	3,164*	0.327	1,035	-1,035
Terminal depreciation			0	9,492*	0.284	2,696	-2,696
							1,50,909

*Since the lessor is selling asset to lessee at the end of 5 years against deposit of 15% of ₹ 1,50,000 i.e. ₹ 22,500, lessee becomes the owner and starts claiming tax benefit on depreciation for the next three years. (assumed to be WDV at 25%)

Depreciation schedule : [Amount in ₹]

Year	Original cost	Depreciation	Outstanding
1	22,500	5,625	16,875
2	16,875	4,219	12,656
3	12,656	3,164	9,492
4	9,492	9,492	0

Analyzing these tables it is concluded that :
Since the net effective cost of Option II is the least, it is advisable to choose the same.

7(b) Portfolio return is given by CAPM:

$R_p = R_f + \beta_p \times (R_m - R_f)$

Where

$\beta_p = (w_1 \times \beta_1) + (w_2 \times \beta_2) + \ldots\ldots\ldots + (w_n \times \beta_n) = \sum_{i=1}^{n} w_i \times \beta_i$

The individual weights for each stock are:

A Ltd. = 0.80 / 9.05 = 8.84% or 0.088

B Ltd. = 1.50 / 9.05 = 16.57% or 0.166

C Ltd. = 2.25 / 9.05 = 24.86% or 0.249

D Ltd. = 4.50 / 9.05 = 49.72% or 0.497

Portfolio beta = 0.088 x 0.45 + 0.166 x 0.35 + 0.249 x 1.15 + 0.497 x 1.85 = 1.3036

Thus the portfolio return = 7 + 1.3036 x (14 – 7) = 16.13%

8. Answer any 4 questions out of 5 **[4x4=16 marks]**

(a) Difference between trading of securities in physical vs dematerialized form

(b) What makes commodity trading attractive?

(c) Benefits of using Financial Derivatives.

(d) Difference between NBFCs and Banks

(e) What do you understand by BID-Ask rate?

Answer:

(a) Trading of securities held in Physical and Dematerialised form- Difference

Aspect	Trading of Physical Shares	Trading of Dematerialised Shares
Actual Delivery	Actual deliver of share to be exchanged	No actual deliver of shares needed
Open Delivery	Open delivery can be kept	Not possible to keep delivery open
Time	Processing time long	Processing time less
Stamp charges	Stamp charges required for transfer	No stamp charges on transfer
Sales transactions	No charges other than brokerage levied	Sales transactions also charged
Registration	For buy transaction, document is to be sent to company for registration	No need to send documents to company for registration.

(b) The following points make commodity trading attractive:

- A good low-risk portfolio diversifier
- A highly liquid asset class, acting as a counterweight to stocks, bonds and real estate.
- Less volatile, compared with, equities and bonds.
- Investors can leverage their investments and multiply potential earnings.
- Better risk-adjusted returns.
- A good hedge against any downturn in equities or bonds as there is little correlation with equity and bond markets.
- High co-relation with changes in inflation.
- No securities transaction tax levied.

(c) The general benefits of using financial derivatives as follows:

1. A prudent use of financial derivatives can provide a new mechanism to manage or reduce various business risks at low transaction cost.
2. The innovative use of financial derivatives can greatly help end-users cut their financing cost.
3. Financial derivatives can provide more access to financial markets, especially to unfamiliar ones at lower costs. Put another way, they can create more complete markets to investors.
4. financial derivative instruments play an important role in asset management due to their lower transaction costs relative to the spot market instruments.
5. The users of financial derivatives can expect to be offered opportunities on taking advantage of asymmetries in tax and regulatory requirements across different countries, markets or securities
6. Financial derivatives can be used to speculate and make profits by assuming certain risks, probably with suitable degree.

(d) NBFCs lend and make investments and hence their activities are akin to that of banks; however there are a few differences as given below:

(i) NBFC cannot accept demand deposits;

(ii) NBFCs do not form part of the payment and settlement system and cannot issue cheques drawn on itself;

(iii) Deposit insurance facility of Deposit Insurance and Credit Guarantee Corporation is not available to depositors of NBFCs, unlike in case of banks.

(e) The bid price is the highest price that someone is willing to pay for buying an asset at that moment. The foreign exchange market is nothing more than an ongoing auction to buy and sell. Just as with any auction, buyers place bids. The asking price is the lowest price at which someone is willing to sell at that moment. Think of it as when we sell a house or other item, we are "asking" a certain price for it. Sellers place asking prices. Therefore, if we are interested in buying dollars we should look at the asking price of a seller. We would have a buyer matched with a seller and the trade could be executed. Likewise, if we are interested in selling dollars, we should look at the bid price since of a buyer. Again, we would have a buyer matched with a seller and the trade could get executed.

(e) What do you understand by BID-Ask rate?

The bid price is the highest price that someone is willing to pay for buying an asset at that moment. The foreign exchange market is nothing more than an ongoing auction to buy and sell. Just as with any auction, buyers place bids.

The asking price is the lowest price at which someone is willing to sell at that moment. Think of it as when you sell a house or other item, you are "asking" a certain price for it. Sellers place asking prices.

Therefore, if you are interested in buying dollars, you should look at the asking price of a seller. You would have a buyer matched with a seller and the trade could be executed. Likewise, if you are interested in selling dollars, you should look at the bid price since of a buyer. Again, you'd have a buyer matched with a seller and the trade could get executed.

The bids and offers come from "limit" orders placed by buyers and sellers. For instance, assume that a rupee has a bid of $50 and an asking price of $50.30. If you place a limit order to buy 100 rupees at $50.10 that means your order could only get executed if you pay $50.10 or less. The bid would be raised to $50.10. The new quote would be bidding $50.10 and asking $50.30. You are now the highest bidder and get posted to the board. Likewise, if someone placed a limit order to sell at $50.20 that means they will only sell their rupees if they can get that price or higher. The new quote would be bid $50.10 and asking $50.20. They are now the lowest offer so get posted to the board.