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SUGGESTED SOLUTION

FINAL MAY 2019 EXAM

SUBJECT - SFM

Test Code – FNJ 7042

BRANCH - () (Date :)

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Answer 1:

(i) Value of share at present = $\frac{D_1}{K_e - g}$

$= \frac{2(1.06)}{0.08 - 0.06} = Rs.106$

However, if the Board implement its decision, no dividend would be payable for 3 years and the dividend for year 4 would be Rs. 2.50 and growing at 7% p.a. The price of the share, in this case, now would be:

$P_0 = \frac{2.50}{0.08\text{-}0.07} \text{ x } \frac{1}{(1+0.08)^3} = \text{Rs.}198.46$

So, the price of the share is expected to increase from Rs. 106 to Rs. 198.45 after the announcement of the project. The investor can take up this situation as follows:

Expected market price after 3 years	$= \frac{2.50}{0.08 - 0.07}$	Rs. 250.00
Expected market price after 2 years	$\frac{2.50}{0.08 - 0.07} \text{ x } \frac{1}{(1+0.08)}$	Rs.231.48
Expected market price after 1 years	$\frac{2.50}{0.08 - 0.07} \text{ x } \frac{1}{(1+0.08)^2}$	Rs.214.33

(ii) In order to maintain his receipt at Rs. 2,000 for first 3 year, he would sell

10 shares in first year @ Rs. 214.33 for Rs. 2,143.30

9 shares in second year @ Rs. 231.48 for Rs. 2,083.32

8 shares in third year @ Rs. 250 for Rs. 2,000.00

At the end of 3rd year, he would be having 973 shares valued @ Rs. 250 each i.e. Rs. 2,43,250. On these 973 shares, his dividend income for year 4 would be @ Rs. 2.50 i.e. Rs. 2,432.50.

Thus, if the project is taken up by the company, the investor would be able to maintain his receipt of at least Rs. 2,000 for first three years and would be getting increased income thereafter.

Answer 2:

1. Calculation of initial outlay:-

		Rs. (million)
a.	Face value	300
	Add:-Call premium	12
	Cost of calling old bonds	312
b.	Gross proceed of new issue	300
	Less: Issue costs	6
	Net proceeds of new issue	294

c. Tax savings on call premium and unamortized cost 0.30 (12 + 9) 6.3

∴ Initial outlay = Rs. 312 million – Rs. 294 million – Rs. 6.3 million = Rs. 11.7 million

2. Calculation of net present value of refunding the bond:-

Saving in annual interest expenses	Rs. (million)
[300 x (0.12 – 0.10)]	6.00
Less:- Tax saving on interest and amortization 0.30 x [6 + (9-6)/6]	1.95
Annual net cash saving	4.05
PVIFA (7%, 6 years)	4.766
∴ Present value of net annual cash saving	Rs. 19.30 million
Less:- Initial outlay	Rs. 11.70 million
Net present value of refunding the bond	Rs. 7.60 million

Decision: The bonds should be refunded

Answer 3:

(i) The Betas of two stocks:

Beta of two stocks

Aggressive stock

Situation	**Probability**	**R_A**	**R_M**	**P × R_A**	**P × R_M**	**P × (R_A - $\bar{R}_A$)× (RM - $\bar{R}_M$)**	**P (R_M - $\bar{R}_M$)²**
1	0.5	4	7	2	3.5	81	40.5
2	0.5	40	25	20	12.5	81	40.5
				22	**16**	**162**	**81**

Beta = $\frac{\sigma AM}{\sigma M^2} = \frac{162}{81} = 2$

- Defensive stock

Situation	**Probability**	**R_D**	**R_M**	**P × R_D**	**P × R_M**	**P × (R_D - $\bar{R}_D$ × (R_M - $\bar{R}_M$)**	**P(R_M - $\bar{R}_M$)²**
1	0.5	9	7	4.5	3.5	20.25	40.5
2	0.5	18	25	9	12.5	20.25	40.5
				13.5	**16**	**40.5**	**81**

Beta = $\frac{\sigma DM}{\sigma M^2} = \frac{40.5}{81} = 0.5$

(ii) Expected returns of the two stocks:-

Aggressive stock – (0.5 x 4%) + (0.5 x 40%) = 22%

Defensive stock – (0.5 x 9%) + (0.5 x 18%) = 13.5%

(iii) Security Market line

$E(R) = R_f + (R_m - R_f) \times \beta$

$E(R) = 7.5 + (16 - 7.5) \times \beta$

$E(R) = 7.5 + 8.5 \times \beta$

(iv) **Alpha of the two stocks**

$\alpha = R_A - \{R_f + (R_m - R_f) \times \beta_A\}$

Aggressive stock

$\alpha = 22 - \{7.5 + 8.5 \times 2\}$

$\alpha = -2.5$

Defensive stock

$\alpha = 13.5 - \{7.5 + 8.5 \times 0.5\}$

$\alpha = 1.75$

Answer 4:

Return of the stock under APT

Factor	Actual value in %	Expected value in %	Difference	Beta	Diff. x Beta
GNP	7.70	7.70	0.00	1.20	0.00
Inflation	7.00	5.50	1.50	1.75	2.63
Interest rate	9.00	7.75	1.25	1.30	1.63
Stock index	12.00	10.00	2.00	1.70	3.40
Ind. Production	7.50	7.00	0.50	1.00	0.50
					8.16
Risk free rate in %					9.25
Return under APT					17.41

Answer 5:

As per T Ltd. Rs. Offer

	Rs. in lakhs
(i) Net Consideration Payable	
7 times EBIDAT, i.e. 7 x Rs. 115.71 lakh	809.97

	Less: Debt	240.00
		569.97
(ii)	**No. of shares to be issued by T Ltd**	
	Rs. 569.97 lakh/ Rs. 220 (rounded off) (Nos.)	2,59,000
(iii)	**EPS of T Ltd after acquisition**	
	Total EBIDT (Rs. 400.86 lakh + Rs. 115.71 lakh)	516.57
	Less: Interest (Rs. 58 lakh + Rs. 30 lakh)	88.00
		428.57
	Less: 30% Tax	128.57
	Total earnings (NPAT)	300.00
	Total no. of shares outstanding	14.59 lakh
	(12 lakh + 2.59 lakh)	
	EPS (Rs. 300 lakh/ 14.59 lakh)	Rs. 20.56

(iv) Expected Market Price:

	Rs. in lakhs
Pre-acquisition P/E multiple:	
EBIDAT	400.86
Less: Interest (580 X $\frac{10}{100}$)	58.00
	342.86
Less: 30% Tax	102.86
	240.00
No. of shares (lakhs)	12.00
EPS	Rs. 20.00
Hence, PE multiple $\frac{220}{20}$	11
Expected market price after acquisition (Rs. 20.56 x 11)	Rs. 226.16

As per E Ltd Rs.s Plan

		Rs. in lakhs
(i)	**Net consideration payable**	
	6 lakhs shares x Rs. 110	660
(ii)	**No. of shares to be issued by T Ltd**	
	Rs. 660 lakhs ÷ Rs. 220	3 lakh
(iii)	**EPS of T Ltd after Acquisition**	
	NPAT (as per earlier calculations)	300.00

	Total no. of shares outstanding (12 lakhs + 3 lakhs)	15 lakh
	Earning Per Share (EPS) Rs. 300 lakh/15 lakh	Rs. 20.00
(iv)	**Expected Market Price (Rs. 20 x 11)**	**220.00**

Answer 6:

Swap Ratio

	Efficient Ltd.	**Healthy Ltd.**
Market capitalization	500 lakhs	750 lakhs
No. of shares	10 lakhs	7.5 lakhs
Market Price per share	Rs. 50	Rs. 100
P/E ratio	10	5
EPS	Rs. 5	Rs. 20
Profit	Rs. 50 lakh	Rs. 150 lakh
Share capital	Rs. 100 lakh	Rs. 75 lakh
Reserves and surplus	Rs. 300 lakh	Rs. 165 lakh
Total	Rs. 400 lakh	Rs. 240 lakh
Book Value per share	Rs. 40	Rs. 32

(i) Calculation of Swap Ratio

EPS	1 : 4 i.e.	4.0 × 40%	1.6
Book value	1 : 0.8 i.e.	0.8 × 25%	0.2
Market price	1 : 2 i.e.	2.0 × 35%	0.7
Total			2.5

Swap ratio is for every one share of Healthy Ltd., to issue 2.5 shares of Efficient Ltd. Hence, total no. of shares to be issued 7.5 lakh × 2.5 = 18.75 lakh shares.

Promoter's holding = 4.75 lakh shares + (5 × 2.5 = 12.5 lakh shares) = 17.25 lakh i.e. Promoter's holding % is (17.25 lakh/28.75 lakh) × 100 = 60%.

Calculation of EPS, Market price, Market capitalization and free float market capitalization.

(ii) Total No. of shares — 10 lakh + 18.75 lakh = 28.75 lakh

Total capital — 100 lakh + 187.5 lakh = Rs. 287.5 lakh

EPS — $\frac{\text{Total Profit}}{\text{No. of shares}} = \frac{50 \text{ lakh} + 150 \text{ lakh}}{28.75 \text{ lakh}} = \frac{200}{28.75}$

= Rs. 6.956

(iii)	Expected market price	EPS 6.956 × P/E 10 = Rs. 69.56
	Market capitalization	= Rs. 69.56 per share × 28.75 lakh shares
		= Rs. 1,999.85 lakh
(iv)	Free float of market capitalization	= Rs. 69.56 per share × (28.75 lakh × 40%)
		= Rs. 799.94 lakh