

The WAY CA test series

CA FINAL

P2: ADVANCED FINANCIAL MANAGEMENT

07.02.2025

[SYLLABUS : Security valuation, Security analysis]

TIME : 1 HR 45 MIN

TOTAL : 60 MARKS

SUGGESTED ANSWERS

PART A : MCQ 12 MARKS

Case Scenario

a) Dirty Price

$$\text{Accrued Interest} = \left(\frac{9 \times 100 \times 240}{360} \right) = 6.00$$

$$\text{Dirty Price} = 97.30 + 6.00 = 103.30$$

b) Repayment at Maturity

First Leg (Start Proceeds):

$$\text{Start Proceeds} = \frac{5,00,00,000 \times 103.30}{100} \times \frac{98.50}{100} = 5,08,92,250$$

Second Leg (Repayment at Maturity):

$$\text{Repo Interest Factor} = \frac{6.10 \times 21}{360 \times 100} = 0.003558334$$

$$\text{Repayment Amount} = 5,08,92,250 \times (1 + 0.003558334) = 5,10,73,370.64$$

Question : 1

2 Marks

a) Rs. 103.30

Question : 2

2 Marks

b) Rs. 5,10,73,342/-

Case Scenario

Question : 3

2 Marks

d) 4852 (Price – 0 + 10,000 x 0.4852)

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Question : 4

2 Marks

d) 6.86% (Annualized yield formula)

Question : 5

2 Marks

a) 118.19

Question : 6

2 Marks

c) 108.11

PART B : DESCRIPTIVE 48 MARKS

Question : 1

8 Marks

Sustainable Growth Rate under Proposal 1

Sales (Given)		₹ 30 Lakhs
Total Assets	$₹30 \text{ Lakhs} \times 0.65$	₹ 19.50 Lakhs
Net Profit	$₹30 \text{ Lakhs} \times 4\%$	₹ 1.20 Lakhs
Equity Multiplier	$\frac{\text{Equity}}{\text{Equity} + \text{Debt}} = \frac{12 \text{ Lakhs}}{12 \text{ Lakhs} + 8 \text{ Lakhs}}$	0.6
ROE	$\frac{1.20 \text{ Lakhs}}{19.50 \text{ Lakhs}} \times 0.60 \times 100$	3.69%

Sustainable Growth Rate = ROE × Retention Ratio = 3.69% × 0.75 = 2.77%

Sustainable Growth Rate under Proposal 2

New Equity = ₹12 Lakhs + ₹1 Lakh = ₹13 Lakhs

New Debt = ₹13 Lakhs × 4 = ₹52 Lakhs

Total Assets = ₹13 Lakhs + ₹52 Lakhs = ₹65 Lakhs

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Target Assets to Sales Ratio (Given)	0.62
Sales	₹65 Lakhs / 0.62 = ₹104.84 Lakhs
Net Profit	₹104.84 Lakhs × 5% = ₹5.242 Lakhs
Equity Multiplier	Equity = 13 Lakhs
	Equity + Debt = 13 Lakhs + 52 Lakhs
	Equity Multiplier = 0.2
ROE	5.242 Lakhs × 0.20 × 100 / 65 Lakhs = 1.613%
Retention Ratio	$\frac{5.242 \text{ Lakhs} - 0.30 \text{ Lakhs}}{5.242 \text{ Lakhs}} = 0.943$

Sustainable Growth Rate = ROE × Retention Ratio = 1.613% × 0.943 = 1.52%

Question : 2

6 Marks

(i) Value of share at present = $Dg / k_e - g = 2(1.06) / (0.08 - 0.06) = ₹106$

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

$$P_0 = 2.50 / (0.08 - 0.07) \times 1 / (1 + 0.08)^3 = ₹198.46$$

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

Expected market price after 3 years	= 2.50 / (0.08 - 0.07)	₹250.00
Expected market price after 2 years	= 2.50 / (0.08 - 0.07) × 1 / (1 + 0.08)	₹231.48
Expected market price after 1 years	= 2.50 / (0.08 - 0.07) × 1 / (1 + 0.08) ²	₹214.33

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

10 shares in first year @ ₹ 214.33 for	₹2,143.30
9 shares in second year @ ₹ 231.48 for	₹2,083.32
8 shares in third year @ ₹ 250 for	₹2,000.00

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At the end of 3rd year, he would be having 973 shares valued @ ₹250 each i.e. ₹2,43,250. On these 973 shares, his dividend income for year 4 would be @ ₹2.50 i.e. ₹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 ₹2,000 for first three years and would be getting increased income thereafter.

Question : 3

8 Marks

(i) Calculation of Bond Duration

Bond A

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value time (years)
1	10	0.917	9.17	0.086	0.086
2	10	0.842	8.42	0.079	0.158
3	10	0.772	7.72	0.073	0.219
4	10	0.708	7.08	0.067	0.268
5	10	0.650	6.50	0.061	0.305
6	10	0.596	5.96	0.056	0.336
7	10	0.547	5.47	0.051	0.357
8	10	0.502	5.02	0.047	0.376
9	10	0.460	4.60	0.043	0.387
10	110	0.4224	46.46	0.437	4.370
			106.40	1.000	6.862

Duration of the bond is 6.862 years or 6.86 year

Bond B

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value time (years)
1	11	0.917	10.087	0.091	0.091
2	11	0.842	9.262	0.083	0.166
3	11	0.772	8.492	0.076	0.228
4	11	0.708	7.788	0.070	0.280

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5	11	0.650	7.150	0.064	0.320
6	11	0.596	6.556	0.059	0.354
7	11	0.547	6.017	0.054	0.378
8	111	0.502	55.772	0.502	4.016
			111.224	1.000	5.833

Duration of the bond B is 5.833 years or 5.84 years.

Bond C

Year	Cash flow	P.V. @ 9%		Proportion of bond value	Proportion of bond value time (years)
1	9	0.917	8.253	0.082	0.082
2	9	0.842	7.578	0.076	0.152
3	9	0.772	6.948	0.069	0.207
4	9	0.708	6.372	0.064	0.256
5	109	0.650	70.850	0.709	3.545
			100.00	1.000	4.242

Duration of the bond C is 4.242 years or 4.24 years

(ii) Amount of Investment required in Bond B and C

Period required to be immunized 6.000 Year

Less: Period covered from Bond A (3.087 Year)

To be immunized from B and C 2.913 Year

Let proportion of investment in Bond B and C is b and c respectively then

$$b + c = 0.55 \quad (1)$$

$$5.883b + 4.242c = 2.913 \quad (2)$$

On solving these equations, the value of b and c comes 0.3534 or 0.3621 and 0.1966 or 0.1879 respectively and accordingly, the % of investment of B and C is 35.34% or 36.21% and 19.66 % or 18.79% respectively.

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(iii) With revised yield the Revised Duration of Bond stands

$$0.45 \times 7.15 + 0.36 \times 6.03 + 0.19 \times 4.27 = 6.20 \text{ year}$$

No portfolio is not immunized as the duration of the portfolio has been increased from 6 years to 6.20 years.

(iv) New percentage of B and C bonds that are needed to immunize the portfolio.

Period required to be immunized 6.000 Year

Less: Period covered from Bond A (3.2175 Year)

To be immunized from B and C 2.7825 Year

Let proportion of investment in Bond B and C is b and c respectively,

$$\text{then } b + c = 0.55$$

$$6.03b + 4.27c = 2.7825$$

$$b = 0.2466$$

On solving these equations, the value of b and c comes 0.2466 and 0.3034 respectively and accordingly, the % of investment of B and C is 24.66% or 25% and 30.34 % or 30.00% respectively.

Question : 4

6 Marks

Working Notes:

(i) Computation of Growth Rate in Earning and EPS

Years	1	2	3	4	5	6	7	8	9	10
Growth in Earning	40%	40%	40%	40%	40%	34%	28%	22%	16%	10%
EPS (₹)	5.60	7.84	10.98	15.37	21.51	28.82	36.89	45.00	52.20	57.42

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(ii) Computation of Payout Ratio and Dividend

Years	1	2	3	4	5	6	7	8	9	10
Payout Ratio	10%	10%	10%	10%	10%	18%	26%	34%	42%	50%
Dividend (₹)	0.56	0.78	1.10	1.54	2.15	5.19	9.59	15.30	21.92	28.71

(iii) Calculation of PV of Dividend

Years	Dividend (₹)	PVF	Pv of Dividend (₹)
1	0.56	0.855	0.48
2	0.78	0.731	0.57
3	1.1	0.625	0.69
4	1.54	0.534	0.82
5	2.15	0.456	0.98
6	5.19	0.390	2.02
7	9.59	0.333	3.19
8	15.3	0.285	4.36
9	21.92	0.244	5.35
10	28.71	0.209	6.00
			24.46

$$TV = 28.71(1.10) / (0.17-0.10) \times 0.209 = ₹94.29 \text{ Intrinsic Value} = ₹24.46 + ₹94.29 = ₹118.75$$

Since the Intrinsic Value of Equity share is less than current market price, it is not advisable to invest in the same.

Question : 5

4 Marks

- The Dow Theory is based upon the movements of two indices, constructed by Charles Dow:
 - 1. Dow Jones Industrial Average (DJIA) and
 - 2. Dow Jones Transportation Average (DJTA).

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These averages reflect the aggregate impact of all kinds of information on the market.

- The movements of the market are divided into three classifications, all going at the same time;
 - 1. the primary movement,
 - 2. the secondary movement, and
 - 3. the daily fluctuations.
- The primary movement is the main trend of the market, which lasts from one year to 36 months or longer. This trend is commonly called bear or bull market.
- The secondary movement of the market is shorter in duration than the primary movement, and is opposite in direction. It lasts from two weeks to a month or more.
- The daily fluctuations are the narrow movements from day-to-day. These fluctuations are not part of the Dow Theory interpretation of the stock market. However, daily movements must be carefully studied, along with primary and secondary movements, as they go to make up the longer movement in the market.
- Thus, the Dow Theory's purpose is to determine where the market is and where it is going, although not how far or high.
- The theory, in practice, states that if the cyclical swings of the stock market averages are successively higher and the successive lows are higher, then the market trend is up and a bullish market exists. Contrarily, if the successive highs and successive lows are lower, then the direction of the market is down and a bearish market exists.

Question : 6

8 Marks

EMA = Previous EMA + [(CP - Previous EMA) x e] or

EMA = [CP x e] + [Previous EMA x (1-e)]

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Date	Sensex	EMA for Previous Day	3 = 1 - 2	4 = 3 × 0.062	5 = EMA (2 + 4)
6	29522	30000	(478)	(29.636)	29970.364
7	29925	29970.364	(45.364)	(2.812)	29967.55
10	30222	29967.55	254.45	15.776	29983.32
11	31000	29983.32	1016.68	63.034	30046.354
12	31400	30046.354	1353.646	83.926	30130.28
13	32000	30130.28	1869.72	115.922	30246.202
17	33000	30246.202	2753.798	170.735	30416.937

Conclusion – The market is bullish. The market is likely to remain bullish for short term to medium term if other factors remain the same. On the basis of this indicator (EMA) the investors/brokers can take long position.

Note: Value of Exponent if not given in question can be calculated as $e = 2/n+1$ where n number days for which EMA is calculated (30 days in this question).

Question : 7

8 Marks

No. of Shares = (₹1300 crores) / (₹40) = 32.5 crores

EPS = PAT / No. of Shares = ₹290 crores / 32.5 crores = ₹8.923

FCFE = Net income – [(1-b) (capex – dep) + (1-b) (ΔWC)]

= 8.923 – [(1-0.27) (47-39) + (1-0.27) (3.45)]

= 8.923 – [5.84 + 2.5185]

= 0.5645

Cost of Equity = $R_f + \beta (R_m - R_f) = 8.7 + 0.1 (10.3 - 8.7) = 8.86\%$

$P_0 = (FCFE(1+g)) / (K_e - g)$

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$$= (0.5645 (1.08)) / (0.0886 - 0.08)$$

$$= 0.60966 / 0.0086$$

$$= \mathbf{₹70.89}$$

ALL THE BEST

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