F.A.S.T
first attempt success tutorials

CA Final
Advanced Financial Management
OUTSCANNER
QUESTION BANK WITH AUDIO SOLUTION
Relevant for May 24 & onwards...

with
MCQs

Adish Jain CA CFA

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Meet Adish

Chartered Accountant (CA) & Chartered Financial Analyst (CFA)

Ex-Morgan Staley & ICICI Securities with 2+ years work-ex in Equity Research

Teaches CA Final-AFM, CFA and Financial Modelling

Taught 4000+ students across courses

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- Conceptual Clarity
- Comprehensive Coverage

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2 Amazing Features

Changing student's experience...

SCANNABLE COMPILER

UNIQUE STRUCTURED CONCEPT NOTES

CA Final
Strategic Financial Management

OUTNOTES
UNIQUE STRUCTURED CONCEPT NOTES
ALONG WITH THEORY NOTES

Relevant for Nov- 23 & onwards...

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THEORY NOTES

Relevant for Nov 23

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FAST

New Questions by ICAI

Relevant for Nov 23

All new questions from Exam Paper, RTPs and MTPs of Nov 21 to May 23

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OutNotes vs. ICAI Chapters

No.	ICAI Chapter Name	OutNotes Chapter Name
1	Financial Policy and Corporate Strategy	Financial Policy and Corporate Strategy
2	Risk Management	Risk Management & Security Analysis
4	Security Analysis	
3	Advanced Capital Budgeting Decisions	Advanced Capital Budgeting Decisions
5	Security Valuation	
	Preference Share Valuation	Fixed Income Securities
	Bond Valuation	
	Money Market Securities	
	Equity Valuation	Equity & Business Valuation
13	Business Valuation	
6	Portfolio Management	Portfolio Management
7	Securitization	Securitization
8	Mutual Funds	Mutual Funds
9	Derivatives Analysis and Valuation	Derivatives & Interest Rate Risk Management
12	Interest Rate Risk Management	
10	Foreign Exchange Exposure and Risk Management	Foreign Exchange & International Financial Management
11	International Financial Management	
14	Mergers, Acquisitions and Corporate Restructuring	Mergers, Acquisitions and Corporate Restructuring
15	Startup Finance	Startup Finance

Table of Content

Equity & Business Valutaion

A. Dividend based Valuation Models

QUESTION 1:

N 10 | N 08

Amal Ltd. has been maintaining a growth rate of 12% in dividends. The company has paid dividend @ ₹3 per share. The rate of return on market portfolio is 15% and the risk-free rate of return in the market has been observed as 10%. The beta co-efficient of the company's share is 1.2.

You are required to calculate the expected rate of return on the company's shares as per CAPM model and the equilibrium price per share by dividend growth model.

Solution:

As per CAPM:

$$E_R = R_f + \beta\ (R_m - R_f)$$
$$= 10 + [1.2\ (15 - 10)]$$
$$= 16\%\ or\ 0.16$$

Applying dividend growth mode for the calculation of equilibrium price:-

$$P_0 = \frac{D_1}{Ke - g}$$
$$= \frac{3(1.12)}{0.16 - 0.12}$$
$$= ₹84$$

Therefore, equilibrium price per share will be ₹ 84.

QUESTION 2:

N 20 | N 11 | SM

A company has a book value per share of ₹ 137.80. Its return on equity is 15% and it follows a policy of retaining 60% of its earnings. If the Opportunity Cost of Capital is 18%, what is the price of the share today?

Solution:

EPS = 137.80 × 15% = 20.67

DPS = 20.67 × (1-0.60) = 8.268

g = 0.15 × 0.060 = 9%

Price of share (P_0) $= \dfrac{D_1}{Ke - g}$

$$= \frac{8.268}{0.18 - 0.09} = 91.87$$

QUESTION 3:
SM | M 21 | M 05

A company's beta is 1.40. The market return is 14%. The risk free rate is 10% (i) What is the expected return based on CAPM (ii) If the risk premium on the market goes up by 2.5% points, what would be the revised expected return on this stock?

Solution:

Expected Return	$= R_f + \beta (R_m + R_f)$
	$= 10 + 1.40 (14 - 10)$
	$= 15.6\%$
Revised risk premium	$= (14\% - 10\%) + 2.5\%$
	$= 6.5\%$
Revised expected return	$= 10 + 1.40 (6.5)$
	$= 19.1\%$

QUESTION 4:
N 21

Following are the details of X Ltd. and Y Ltd.:

Particulars	X Ltd.	Y Ltd.
Dividend per Share	₹ 4	₹ 4
Growth Rate	10%	10%
Beta	0.9	1.2
Current Market Price per Share	₹ 150	₹ 70

Other Information:

Risk Free Rate of Return   7%

Market Rate of Return   14%

a.   Calculate the price of shares of both the companies.

b.   Write the comment on the valuation on the basis of price calculated and current market price.

c.   As an investor what course of action should be followed?

Solution:

a)   Calculation of Prices of shares of both companies:

	X Ltd.	Y Ltd.
Beta	0.9	1.20

Cost of Equity using CAPM	= 7% + 0.9 [14% - 7%] = 13.30%	= 7% + 1.20 [14% - 7%] = 15.40%
Growth Rate	10%	10%
Price of Share	$= \dfrac{4.00}{0.133 - 0.10}$ = ₹ 121.21	$= \dfrac{4.00}{0.154 - 0.10}$ = ₹ 74.07

b) and c)   Comment on valuation and course of action:

company	CMP	Value	Valuation	Action of the Investor
X Ltd.	₹ 150.00	₹ 121.21	Overvalued	Sell
Y Ltd.	₹ 70.00	₹ 74.07	Undervalued	Buy

QUESTION 5:
M 15

The following information is collected from the annual reports of J Ltd:

Profit before tax	₹ 2.50 crore
Tax rate	40 percent
Retention ratio	40 percent
Number of Outstanding shares	50,00,000
Equity capitalization rate	12 percent
Rate of return on investment	15 percent

What should be the market price per share according to Gordon's model of dividend policy?

Solution:

	PBT	2,50,00,000
Less:	Tax @ 40%	(1,00,00,000)
	EAES	1,50,00,000
÷	No. of shares	50,00,000
	EPS	3

Calculation of DPS   = 3 × 0.60 = 1.80

Calculation of growth = 0.40 × 0.15 = 6%

Price of share (P_0) $= \dfrac{D_1}{K_e - g}$

$$= \frac{1.80}{0.12-0.06} = 30$$

QUESTION 6:

N 18 | N 13 | M 11 | M 05 | SM | RTP

Shares of Voyage Ltd. are being quoted at a price-earnings ratio of 8 times. The company retains ₹ 5 per share which is 50% of its Earning Per Share.

You are required to determine:

1. the cost of equity to the company if the market expects a growth rate of 15% p.a.
2. the indicative market price with the same cost of capital and if the anticipated growth rate is 16% p.a.
3. the market price per share if the company's cost of capital is 20% p.a. and the anticipated growth rate is 18% p.a.

Solution:

1. Retained Earnings   ₹ 5 per share
   Retention ratio   50%
   EPS   ₹ 10
   DPS   ₹ 5
   PF Ratio   8 times
   Market Price   ₹ 10 × 8 times = ₹ 80

   Computation of cost of equity $= \dfrac{D_1}{P_0} + g$

                                            $= \dfrac{5}{80} + 0.15$

                                            = 21.25%

2. Market Price $= \dfrac{D_1}{k_e-g} = \dfrac{5}{0.2125-0.16}$

                     = ₹ 95.24

3. Market Price $= \dfrac{D_1}{k_e-g} = \dfrac{5}{0.20-0.18}$

                     = ₹ 250

QUESTION 7:

MTP N 23 | M 18 | N 14

The risk-free rate of return R_f is 9 percent. The expected rate of return on the market portfolio R_m is 13 percent. The expected rate of growth for the dividend of Platinum Ltd. is 7 percent. The last

dividend paid on the equity stock of firm A was ₹ 2.00. The beta of Platinum Ltd. equity stock is 1.2.

a. What is the equilibrium price of the equity stock of Platinum Ltd.?
b. How would the equilibrium price change when:
- The inflation premium increases by 2 percent?
- The expected growth rate increases by 3 percent?
- The beta of Platinum Ltd. equity rises to 1.3?

Solution:

a.   Calculation of cost of equity by using CAPM

$$= R_f + \beta (R_m - R_f)$$
$$= 9 + 1.2 (13 - 9)$$
$$= 13.8\%$$

Calculation of equilibrium price

$$= \frac{D_1}{Ke - g}$$

$$= \frac{2(1 + 0.07)}{0.138 - 0.07}$$

$$= ₹ 31.47$$

b.   Revised price after the change:

$$R_f = 11\%$$
$$R_m = 15\%$$
$$Growth = 10\%$$
$$Beta = 1.3$$

Calculation of K_e by using CAPM

$$= R_f + \beta (R_m + R_f)$$
$$= 11 + 1.3 (15 - 11)$$
$$= 16.2\%$$

Equilibrium price after the change:

$$= \frac{D_1}{Ke - g}$$

$$= \frac{2 (1 + 0.1)}{0.162 - 0.10}$$

$$= 35.48$$

QUESTION 8:

M 13 | SM | RTP

X Limited just declared a dividend of ₹ 14.00 per share. Mr. B is planning to purchase the share of X Limited, anticipating increase in growth rate from 8% to 9%, which will continue for three years He also expects the market price of this share to be ₹ 360.00 after three years

You are required to determine:

a. The maximum amount Mr. B should pay for shares, if he requires a rate of return of 13% per annum.

b. The maximum price Mr. B will be willing to pay for share, if he is off the opinion that the 9% growth can be maintained indefinitely and require 13% rate of return per annum.

c. The price of share at the end of three years If 9% growth rate is achieved and assuming other conditions remaining same as in (ii) above.

Calculate rupee amount up to two decimal points.

	Year - 1	Year – 2	Year – 3
FVIF @ 9%	1.090	1.188	1.295
FVIF @ 13%	1.130	1.277	1.443
PVIF @ 13%	0.885	0.783	0.693

Solution:

a) Calculation of Dividends

Year	0	1	2	3	4
Growth		9%	9%	9%	9%
Dividend	14	15.26	16.63	18.13	19.76

The maximum amount Mr. B should pay for share

Year	CF's	PVAF@13%	PV
1	15.26	0.885	13.5051
2	16.63	0.783	13.0213
3	18.13 + 360	0.693	262.044
Max Amount			288.57

b. Gordon's formula

If growth rate 9% is achieved for indefinite period, then maximum price of share should Mr. A willing be to pay is

$$= \frac{D_1}{Ke-g}$$

$$= \frac{15.26}{0.13-0.09}$$

$$= ₹ 381.5$$

c.   Max price paid of the end of 3 year

$$P_3 = \frac{D_4}{ke-g}$$

$$= \frac{19.7621}{0.13-0.09}$$

= ₹ 494.05

QUESTION 9:

M 21

NM Ltd. (NML) is aspiring to enter the capital market in a three years' time. The Board wants to attain the target price of ₹ 70 for its shares at the end of three years The present value of its shares is ₹ 52.03. The dividend is expected to grow at a rate of 15% for the next three years NML uses dividend growth model for its projections.

The required rate of return is 15%.

You are required to calculate the amount of dividend to be declared by the board in the base year so as to achieve the target price.

Period (t)	1	2	3
PVIF (15%, t)	0.8696	0.7561	0.6575

Solution:

value of Share   = PV of Dividend for 3 years + PV of Target price after 3 years

      ₹ 52.03   = PV of Dividend for 3 years + 70.00 × 0.6575

      PV of Dividend for 3 years = ₹ 52.03 - ₹ 46.03 = ₹ 6

Let Base Dividend is D_0, then

      $6 = D_0 (1+g) \times PVIF_{(15\%,1)} + D_0 (1+g)^2 \times PVIF_{(15\%, 2)} + D_0 (1+g)^3 \times PVIF_{(15\%, 3)}$

      $6 = D_0 (1.15) \times 0.8696 + D_0 (1.15)^2 \times 0.7561 + D_0 (1.15)^3 \times 0.6575$

      $D_0 = 2$

      Thus, Company should declare a dividend of ₹ 2 in base year.

QUESTION 10:

MTP M 15

SRK Ltd. is a listed company and it has just announced annual dividend for the year ending 2013-14. Earnings Per Share (EPS) and Dividend Per Share (DPS) for 5 years is as follows:

₹	2013-14	2012-13	2011-12	2010-11	2009-10
EPS	14	13.6	13.1	12.7	12.2
DPS	8.2	8.1	7.9	7.8	7.7

In the opinion of MD of SRK Ltd., if current dividend policy is maintained annual growth in Earnings and Dividends will be no better than the annual growth in earnings over the past years

Since the Board of SRK Ltd. is reluctant to take debt to finance growth it is considering changing its dividend policy by retaining 50% of its earnings for investment in various projects having a post-tax rate of return of 15%. The beta of SRK Ltd. is 1.5, market risk premium is 4% and Risk Free Rate of Return is 6%.

You are required to calculate expected market price of share, if

a.   SRK Ltd. does not announce a change in its Dividend Policy.

b.   SRK Ltd. does announce a change in its Dividend Policy by retaining 50% of its earnings.

Note: Growth Rate can be assumed to be remain stable.

Solution:

a)   Calculation of cost of equity using CAPM

$$K_e = R_f + \beta (R_m - R_f)$$
$$= 6 + 1.5 (4)$$
$$= 12\%$$

Average Growth Rate $= \left(\dfrac{14.00}{12.20}\right)^{1/4} - 1 = 3.5\%$

Calculation of MP by Gordon's formula

$$P_0 = \frac{D_1}{K_e - g}$$
$$= \frac{8.2 \times 1.035}{0.12 - 0.035}$$
$$= 99.85$$

b)   Dividend Payout Ratio: = 50%

RR   = $1 - 0.5 = 50\%$

ROE   = 15%

Calculation of growth rate

$$= RR \times ROE$$
$$= 0.50 \times 0.15$$
$$= 7.5\%$$

D_1 $= 14 \times 50\% \times 1.075$

$$= 7.525\%$$

$$P_0 = \frac{D_1}{K_e - g}$$
$$= \frac{7.525}{0.12 - 0.075}$$
$$= 167.22$$

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* Month & day counting Rule: 71 & 123.
* Rounding off Rules:

SCANNABLE COMPILER

$\sigma_P^2 = (\sigma_A W_A)^2 + (\sigma_B W_B)^2 + 2\sigma_A W_A \sigma_B W_B r_{AB}$

$\sigma_P^2 = (\sigma_A W_A)^2 + (\sigma_B W_B)^2 + 2 W_A W_B \text{cov}_{AB}$

In case of **3 securities** *in the portfolio:*

$\sigma_P^2 = (\sigma_A W_A)^2 + (\sigma_B W_B)^2 + (\sigma_C W_C)^2$
$+ 2 W_A W_B \text{cov}_{AB}$
$+ 2 W_B W_C \text{cov}_{BC}$
$+ 2 W_A W_C \text{cov}_{AC}$

Special Case of σ_P of two securities, when r is equal to +1 and -1

Perfect Negative	No Correlation	Perfect Positive
r = -1	r = 0	r = +1

negative corr^n positive corr^n

If we put r = +1 and -1 in the below formula of SD:

$\sigma_P = \sqrt{(\sigma_A W_A)^2 + (\sigma_B W_B)^2 + 2 \sigma_A W_A \sigma_B W_B r_{AB}}$

$\sigma_P = \sigma_A W_A - \sigma_B W_B$ $\sigma_P = \sigma_A W_A + \sigma_B W_B$

$E(R_P) = E(R_A) \times W_A + E(R_B) \times W_B$

14

QUESTION 6:
RTP N 20
Mr. SG sold five 4-Month Nifty Futures on 1st February 2020 for ₹ 9,00,000. At the time of closing of trading on the last Thursday of May 2020 (expiry), Index turned out to be 2100. The contract multiplier is 75.
Based on the above information calculate:
a. The price of one Future Contract on 1st February 2020.
b. Approximate Nifty Sensex on 1st February 2020 if the Price of Future Contract on same date was theoretically correct. On the same day Risk Free Rate of Interest and Dividend Yield on Index was 9% and 6% p.a. respectively.
c. The maximum Contango/ Backwardation.
d. The pay-off of the transaction.
Note: Carry out calculation on month basis.

Solution:
a. Price of one future contract on 1st Feb, 2020
   $= \dfrac{900000}{5}$
   = ₹ 180000
b. Calculation of Nifty Index Spot Price:
   FP = SP × [1 + (r - y) × n] × 75
   180000 = SP × [1+(0.09 – 0.06) × 4/12] × 75
   178218 = SP × 75
   2376.23 = SP
c. Maximum contango/Backwardation
   spot = 2376.23
   future = 2400 (180000/75)
   S < F
   2376.23 < 2400 ∴ market is in contango
   Max. contango = Basis
   = S – F

Audio Solutions

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15	Startup Finance	Startup Finance

Table of Content

Important Instructions
before we read this book...

- This book has been creatively designed to help you understand and remember the concepts easily. For this purpose, concepts have been presented in diagrams and charts format. However, for theory topics, answers must be written in simple pointers and paragraph format in exams.

- The purpose of text in **Grey Colour** is to give you the background of the main concept, which will be more useful while reading first time. At the time of revision, you should make use of colour coding & ignore grey text.

- Below theory chapters & topics have more importance and should be studied on priority to other chapters:

  Chapters:
  1. Start-Up Finance
  2. Securitization
  3. Financial Policy and Corporate Strategy
  4. Risk Management
  5. Security Analysis

Chapters	M 23	N 22	M 22	N 21	M 21	N 20 (II)	N 20	N 19
Start-Up Finance	8	8	4	8	8	8	7	8
Securitization	4	4	4	4	4	8	4	8
Financial Policy & Corp Strat	4	4	4		4	4		4
Risk Management			4	4	4			
Security Analysis				4			4	
Other Chapters	8	12	8	4	4		4	
Total	**24**	**28**	**24**	**24**	**24**	**20**	**19**	**20**

All the best!

→ If the number being calculated naturally has only 2, 3 or 4 digits after decimal point, then there is no need to round off and student can continue to use that number in the solution. However, if there are many digits after the decimal point then rounding off should be done as follows :

Basics of Financial Management

No. of digits after decimal points.

2	Returns: k_e, R_F, $E(R)$, σ, σ^2, RoE, α Weights & probabilities (%) Mutual Fund Units & NAV Amount not in Lakhs, million or Crore.
3	Beta (β) PVF, FVF, etc. Duration (Macaulays & Modified.) Correlation (γ) Exchange Ratio (M & A)
4	Weights & probabilities (decimals) Exchange Rate (unless question has some other flow) Binomial model: u & d. B & S : d_1, d_2, $N(d_1)$ & $N(d_2)$ Mutual Fund NAV Amount in Lakhs, million or Crore.

Basics of Financial Management

A. Basic Ratios

1) Earnings Per Share

Earnings Per Share (EPS)

$$\frac{EAES}{n}$$

n: no. of shares.

In the absence of preference dividend, EAES = PAT.

P&L extract:

Particulars	Amount
PAT	xx
(-) Pref. div	(xx)
EA to ES	xx

2) Price Earnings Ratio & Market Price per Share

Price Earnings Ratio (PE Ratio): PE Ratio is 'how much are the investors ready to pay for a share of a company, for every rupee of income earned from it'. And a lot more…

$$PE: \frac{MPS}{EPS}$$

Market Price Per Share (MPS)

$$MPS: EPS \times PE$$

3) Dividend: Absolute & Percentage

Dividend Per Share (DPS) : $\dfrac{Total\ dividend}{n}$

Dividend Rate	Dividend Yield	Payout Ratio	Retention Ratio
(as a % of FV)	*(as a % of MPS)*	*(as a % of EPS)*	RE: EPS - DPS
DPS: FV × Div. Rate.	Div Yield : $\dfrac{DPS}{MPS}$	$\dfrac{DPS}{EPS}$	RR: $\dfrac{RE}{EPS}$ or $1 - DPR$

4) Market Capitalization

Market Capitalisation (M-Cap) means total market value of equity shares of the company.

Example: Justdial Ltd has 1000 equity shares outstanding. Current market price is ₹ 15 per share.

Shareholding Pattern	Number of Shares	Holding %
Promoters	700	70%
General Public	300	30%

Free float

Total or Full Market Cap	Free-float Market Cap
It is the total value of all equity shares of the company.	It is that part of total market cap that is not held by promoters i.e., held by general public
Calculation of M-Cap	
Total no. of shares × MPS = 1000 × 15 = 15,000	Free-float no. of shares × MPS. 300 × 15 = 4500
✗	Total m-cap × Free float holding (%) : 15,000 × 30% ∴ 4,500

5) Book Value per Share

Book-value per Share (BVPS) is the per share value of equity shareholders in the net assets of the company as per books.

$$\therefore \quad \frac{ESHF}{n.}$$

→ Net assets or Net worth.

Equity Shareholders Funds (ESHF) is the total value of equity shareholders in the net assets of the company as per books.

$$ESHF : ESC + R\&S - P/L(Dr.) - Mis.Exp.(Dr.)$$

$$: \quad \text{Total Asset} - \text{External liability} - P/L(Dr.) - Mis.Exp.(Dr}$$

6) Return on Equity

Return on Equity (ROE) is the accounting return to the equity shareholders as per books.

$$\frac{EAES.}{ESHF} \quad \text{or.} \quad \frac{ERS}{BVPS.}$$

B. Different types of Rates of Return

1) Expected Rate of Return

It is the rate of return that an investor estimates (expects) that he will earn on an investment. It reflects the perception of investor for that investment. It is usually calculated from 1 year's perspective on the share of the company.

Example: A share is bought today @ ₹ 100 and investor estimates that it can be sold @ ₹ 115 after a year. Then, expected rate of return on the investment is 15%.

$$E(R_i) : \frac{P_1 - P_0 + D.}{P_0.}$$

$$: \frac{115 - 100 + 0}{100}$$

$$: 15\%.$$

2) Internal Rate of Return (technique)

It is the discounting rate at which PV of cash inflows from an investment is equals to initial cash outflow. It is calculated to determine the compounded rate of return actually earned (in case of ex-post data) or to be earned (in case of ex-ante data) on any investment.

Example:

Year	Cash Flows (₹)
0	- 110
1	11
2	121

$$110 = \frac{11}{(1+\gamma)^1} + \frac{121}{(1+\gamma)^2}$$

→ Trial & error method.

$\gamma : 10\%.$

✗ Verifying the return earned:

Year	Amount Invested	Return Accrued	Return received	Due Amount

3) Required Rate of Return

→ depends on risk taken

It is the minimum <u>rate of return required</u> from an investment. Also called as Opportunity Cost, it is used as discounting rate to calculate PV of cash flows. When compared with expected rate of return, it helps in investment decision.

Real Rate to discount Risky CFs.

Inflation Premium		Real Risk-free Rate		Risk Premium	
Compensation for loss of purchasing power of money invested	+	Compensation for allowing use of money to other	+	Compensation for taking risk while making a risky investment	= Nominal rate for risky CFs.

Nominal Rate to discount RF cashflows.

C. Time Value of Money

~~6 months' period~~ 4 cor.	1	2	3	4	5
Cash Flows (₹)	200	200	200	200	200

Example: Discounting rate = 10%

Future Value	Present Value
Single Sum:	

of today.

Future Value — Single Sum:

Value of ₹ 200 at the end of year 5th period:

$$FV = PV \times FVF_{(10\%,5)}$$
$$= 200 \times (1.1)^5$$
$$= 200 \times 1.611$$
$$= 322.2$$

Present Value — Single Sum:

Value of ₹ 200 today:

$$PV = FV \times PVF_{(10\%,5)}$$
$$= 200 \times \frac{1}{(1.1)^5}$$
$$= 200 \times 0.621$$
$$= 124.2$$

Annuity: [A]

Regular Annuity

Value of all CFs at the end of 5th period assuming CFs occur at the end of the period:

$1.1 \times 1 = m+ \rightarrow 1.1$
$= m+ \rightarrow 1.21$
$= m+ \rightarrow 1.331$
$= m+ \rightarrow 1.464$

$$FV = A \times FVAF_{(10\%,5)}$$
$$= 200 \times 6.105$$
$$= 1221$$

Value of all CFs today assuming CFs occur at the end of the period:

$$PV = A \times PVAF_{(10\%,5)}$$
$$= 200 \times 3.791$$
$$= 758.2$$

Annuity Due

Value of all CFs at the end of 5th period assuming CFs occur in the beginning of the period.	*Value of all CFs today assuming CFs occur in the beginning of the period.*

Perpetuity

Value of infinite number of CFs of ₹ 200 at the end of infinite period:	*Value of infinite number of CFs of ₹ 200 today:*
Impossible to calculate.	$PV: \dfrac{A}{r}$ $: \dfrac{200}{0.1} : ₹ 2000.$

List of Ratios used in SFM →

- Asset Turnover Ratio
- Asset to sales Ratio
- ROCE : $\dfrac{EBIT}{CE = E + D + P.}$
- NPA Ratio (%) : $\dfrac{NPA (₹)}{Advances (loan given.)}$
- CAR : $\dfrac{Capital}{Risk wtd assets}$

- Debt Ratio
- Debt to Equity Ratio

- Capital gearing Ratio.

D. Types of Cash Flows

Nominal Cash Flows	*Real Cash Flows*
Nominal cash flows are the amount of future revenues or expenses the company expects to receive or pay. Nominal cash flow has effect of inflation included in it.	*When effect of inflation is removed from such future cash flows, they are called Real cash flows. Real cash flow does not have effect of inflation included in it.*
Relationship between Nominal cash flow and Real cash flow: $\text{Nominal CF} : \text{Real CF} \left(1 + \text{Inflat}^n (\%)\right)^2$	
To calculate PV of nominal cash flow, nominal discounting rate is used.	*To calculate PV of real cash flow, real discounting rate is used.*
Relationship between Nominal and Real discounting rate: $\left(1 + \text{Nominal}\right) = \left(1 + \text{Real}\right)\left(1 + \text{Inflat}^n\right)$	

Example: Cipla Ltd has forecasted cash inflow of ₹ 100 crores to be received at the end of 2nd year. Real discounting rate is 10% and inflation in the economy is at 5%. Calculate PV of future cash flow using Nominal discounting rate and Real discounting rate.

Using Nominal discounting rate:	**Using Real discounting rate:**
$\text{nominal discounting Rate} : (1.1)(1.05) - 1$ $: 15.5\%$ $PV : \dfrac{100 (8)}{(1.155)^2}$ $: 74.96$	$\text{Real CF} : \dfrac{\text{Nominal}}{(1 + \text{Inflation.})^2}$ $: \dfrac{100}{(1.05)^2}$ $: 90.70$ $PV : \dfrac{90.70}{(1.1)^2}$ $: 74.96$

E. Types of Interest Rates

1) Fixed vs Floating Interest rates

<u>Fixed Rate</u>

This rate of interest does not change during the tenure of borrowing or lending
Example: Loan taken or given @ 8% pa

⬇

No risk of change in Interest Rates

<u>Floating / Variable Rate</u>

This rate of interest may change during the tenure of borrowing or lending
Example: Loan taken or given @ LIBOR

⬇

Risk of change in Interest Rates

⬇

0m   3m   6m

Fixing Date
Reset Date

Reset period.
3m Libor : 8% pa.

Settlement Date.

Interest rate decided here

Interest amount paid here.

2) Spot vs Forward Interest Rates

▬ Spot rate / ZCB rate
▬ forward rate.

0y   1y   2y   3y .

5% pa.

? → 5.2%.

5.1% p.a.

5.5% pa.

NOTE   An interest rate can be used for compounding (PV to FV) or discounting (FV to PV) the cash flows only for that time period to which that rate belongs.

Part from Fixed Income : Calculating Fwd rate using spot

PV

0y — 5% p.a. → 1y — FR - ? = 5.2% → 2y — FV₁ = FV₂

5.1% p.a.

Equity & Corporate Valuation

PV

0 — 5% → 1 — FR → ? — 2 — 3 — FV₁ = FV₂

5.5 %

$$\left(1.05\right)^{1} \left(1+FR\right)^{2} = \left(1.055\right)^{3}$$

FR : 5.75 %

- Term structure / yield curve
- term of zcb : spot .

Dividend Based Valuation Models

- *Zero Growth Model*
- *Constant Growth Model*
- *Variable Growth Model*
- *H Model*

Cash Flow Based Valuation Models

- *Free Cash Flow to Firm Approach*
- *Free Cash Flow to Equity Approach*

Asset Based Valuation Models

- *Net Asset Value Method*

Earnings Based Valuation Models

- *Earnings Capitalisation Method*
- *Walter's Model*

Relative Valuation

- *Equity Value Multiples Based Valuation*
- *Enterprise Value Multiples Based Valuation*
- *Chop - Shop Approach*

Other Important Topics

- *Economic Value Added*
- *Market Value Added*
- *Concept of Rights Issue*
- *Concept of Buy-back*
- *Concept of Bonus Issue*

A. Dividend based Valuation Models

Fundamental Principle of Valuation: *Value of any asset today is the present value (PV) of all future cash flows (CFs) generated from that asset. Value of:*

Equity Share	PV (Div.) + PV (Sales price)
Bonds	PV (Coupon) + PV (RV.)
Any other asset	PV (FCF)

Common sense behind the principle:
Suppose a share can be sold @ ₹ 110 at the end of one year. Your required rate of return is 10%. How much will you be ready to pay for that asset so that you earn required return of 10%?

compounding

$$PV + \text{int} : FV.$$

discounting

$$\frac{110}{1 \cdot 1} : ₹ 100$$

*Dividend Discount Models (DDMs) use dividends as the basis of calculating **Intrinsic Value** (**IV**- what should be the valued) of shares.*

Definite number of years

Value of Share: PV (Div) + PV (Sales price)

Yes Bank is expected to distribute dividends of ₹ 10 and ₹ 12 next year and a year thereafter. At the end of this period, its share is expected to be sold at ₹ 150. Calculate the value of share if discounting rate is 15%.

Indefinite number of years

Value of Share: PV (D$_{1,2,3}$.... ∞)   [DDMs discussed ahead.]

Calculation of cost of equity

*We know that dividends belong to ESHs, therefore, discounting rate to be used to calculate PV will be required rate of return to ESHs i.e., **Cost of Equity (K_e)**:*

- *Preference # 1: **CAPM****

$$K_e \text{ or } R_j \text{ or } E(R_i): R_F + \beta_i (R_m - R_F)$$

market risk premium

security risk premium

*CAPM is covered in detail in the chapter 'Portfolio management'.

- *Preference # 2: **Gordon's Formula***

Without Floatation Cost	**With Floatation Cost**
$K_e: \dfrac{D_1}{P_0} + g$	$K_e: \dfrac{D_1}{\text{Net proceed}^*} + g$ $*: P_0 / \text{Issue price} - \text{Floation cost}$

- *Preference # 3: **Earning's Yield***

$$K_e: \frac{EPS}{MPS} : \frac{1}{PE}$$

Required Rate of Return (R_j) vs Expected Rate of Return ($E(R_i)$)

Many times, examiner uses the words 'Required Rate of Return' and 'Expected Return' interchangeably. This is simply because:

> *If $E(R_i) = R_j \Rightarrow$ then $P_0 = IV$*   **OR**   *If $P_0 = IV \Rightarrow$ then $E(R_i) = R_j$*

It means that examiner is assuming the security as fairly valued. Hence, by whatever name ($E(R_i)$ or R_j) rate is given in the question, it will be used as discounting rate to calculate IV.

***Conclusion:** In other words, solve the question normally by treating the given rate as R_j.*