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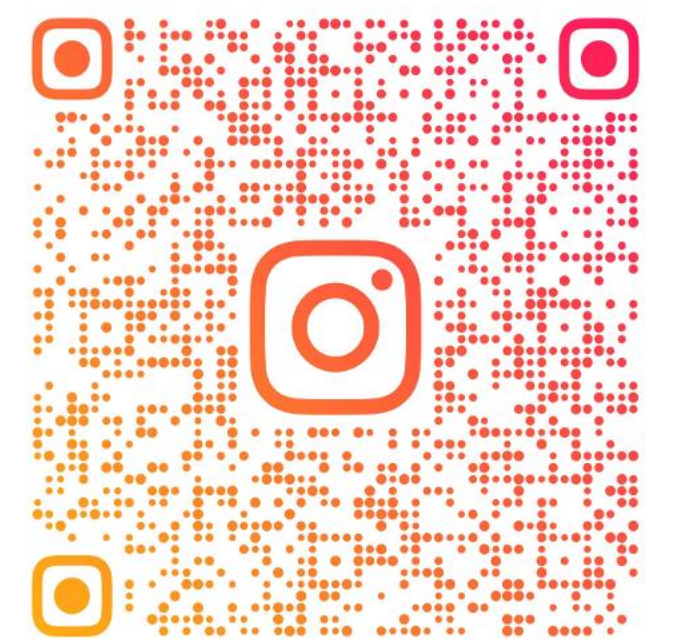


CA ADARSH JOSHI

CA , B.COM

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- 8+ years of teaching experience in CA education
- Subject Expert in:
CA Foundation – Paper 2: Business Laws
CA Intermediate – Paper 2: Corporate and Other Laws
- Has uploaded over 3000+ educational videos for CA Foundation and CA Inter students
- Known for his dynamic, conceptual and “fun-and-learn” teaching style
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- Strong academic background with B.Com (BMCC, Pune) and ACA qualification
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CA DARSHAN JAIN

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CO FOUNDER

- Chartered Accountant by profession & educator by passion
- Teaching Financial Accounting , Financial Management & Strategic Management to CA Students For 12 Years.
- Practicing Chartered Accountant For Past 13 years in The Field of Audit , Direct & Indirect Taxes & Management Consultancy
- Elected as Convenor of The Jalna CA CPE Chapter of WIRC of ICAI For 2 consecutive years 20-21 & 21-22.
- He Has Successfully Completed & Qualified Following Certificate Course Conducted By ICAI
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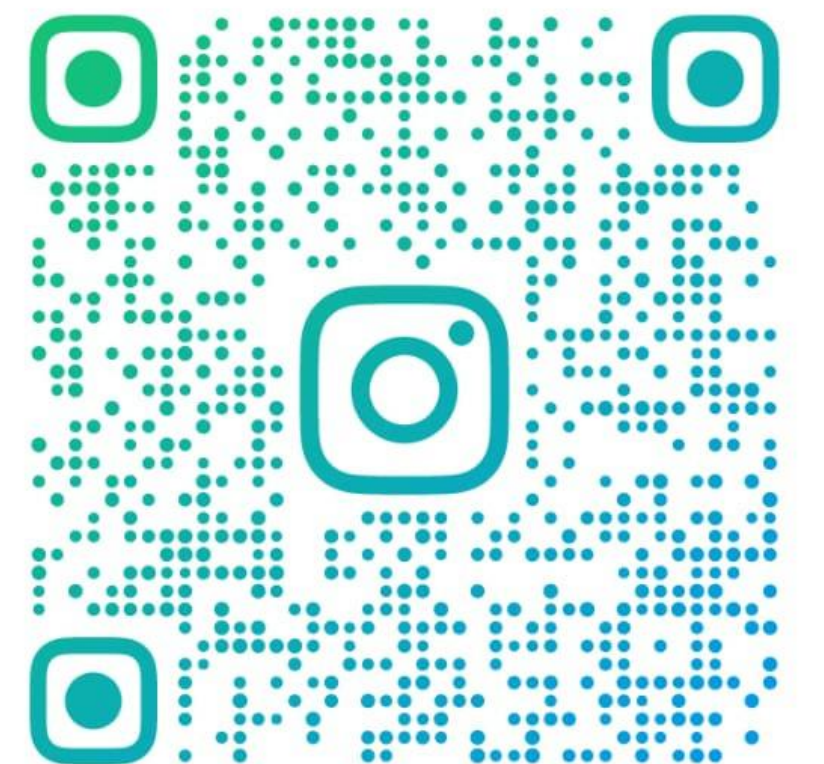


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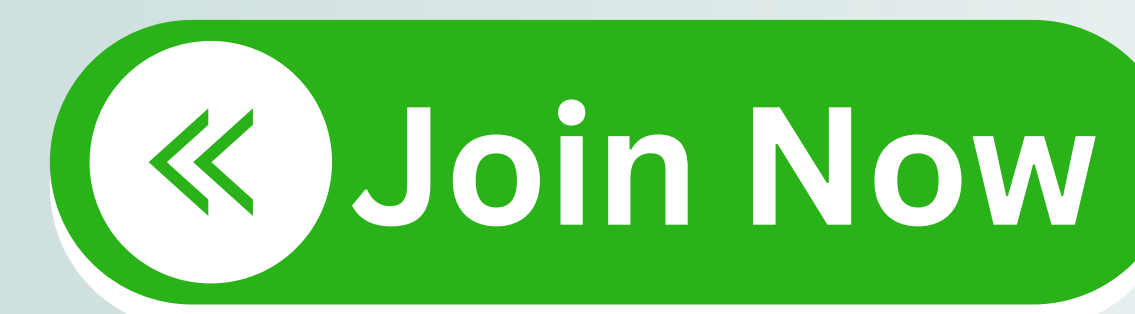
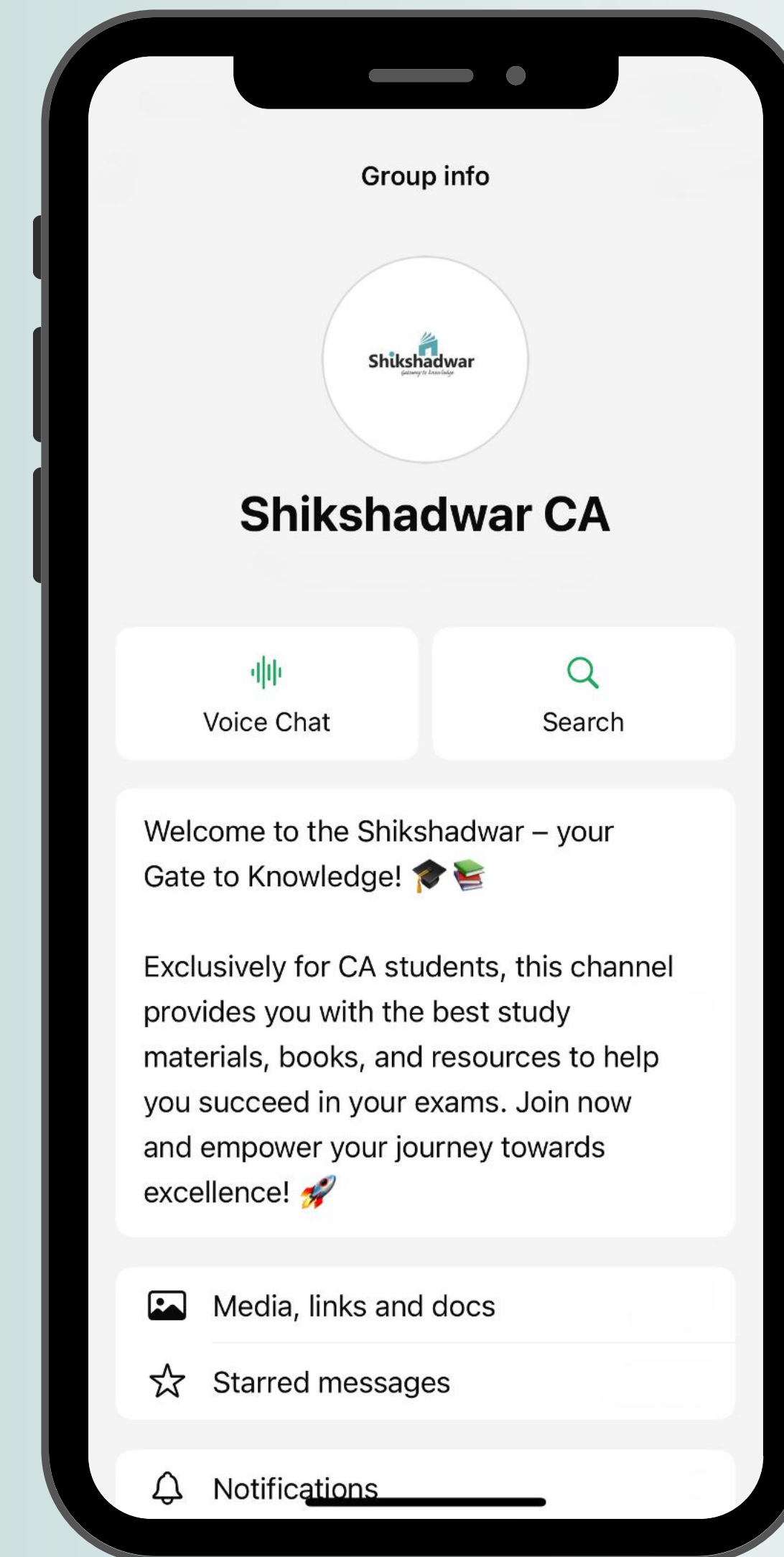
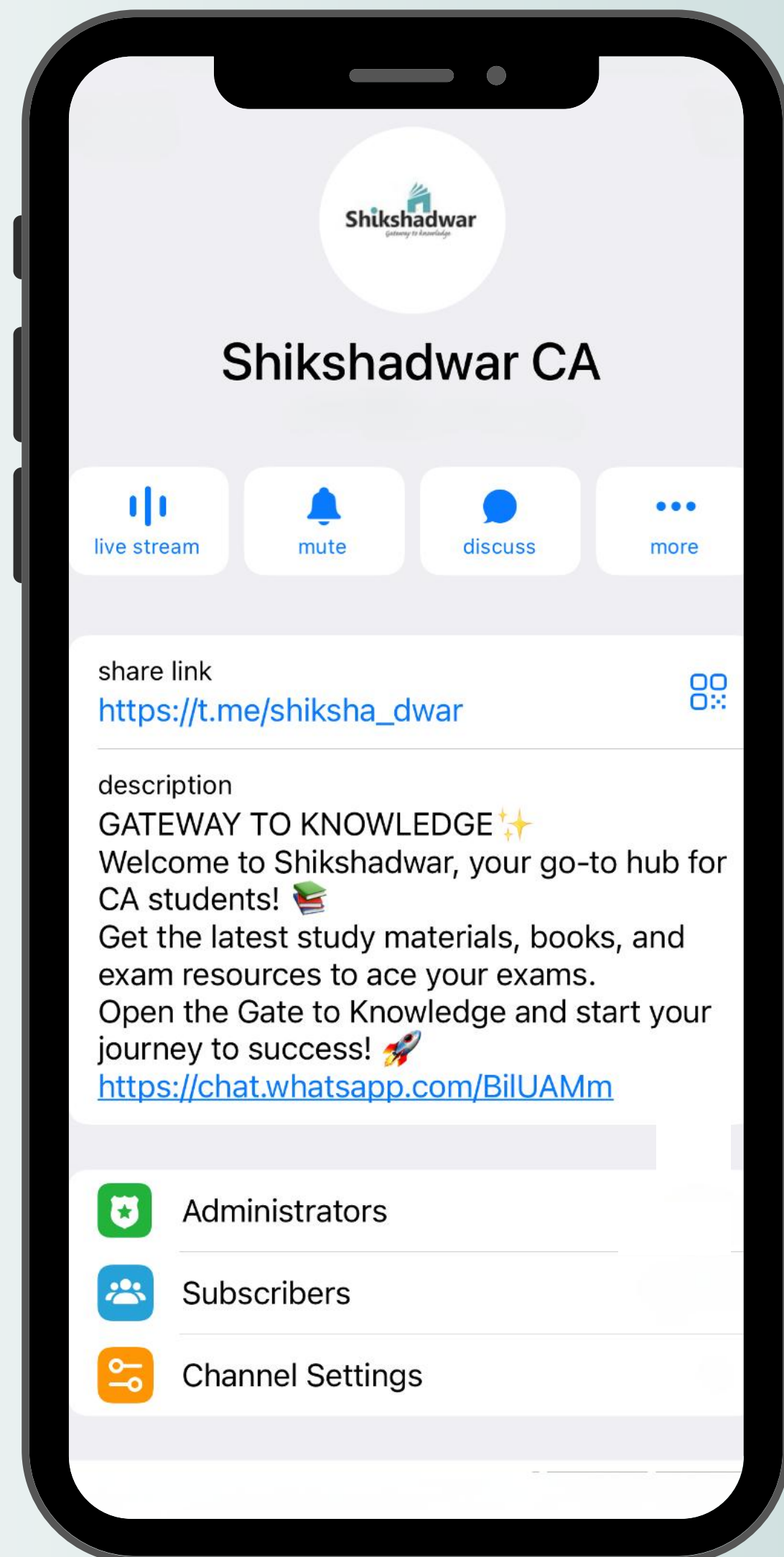
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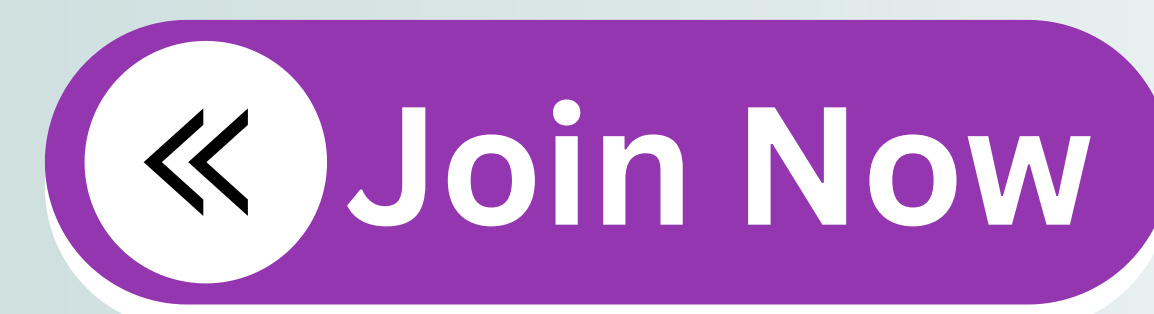
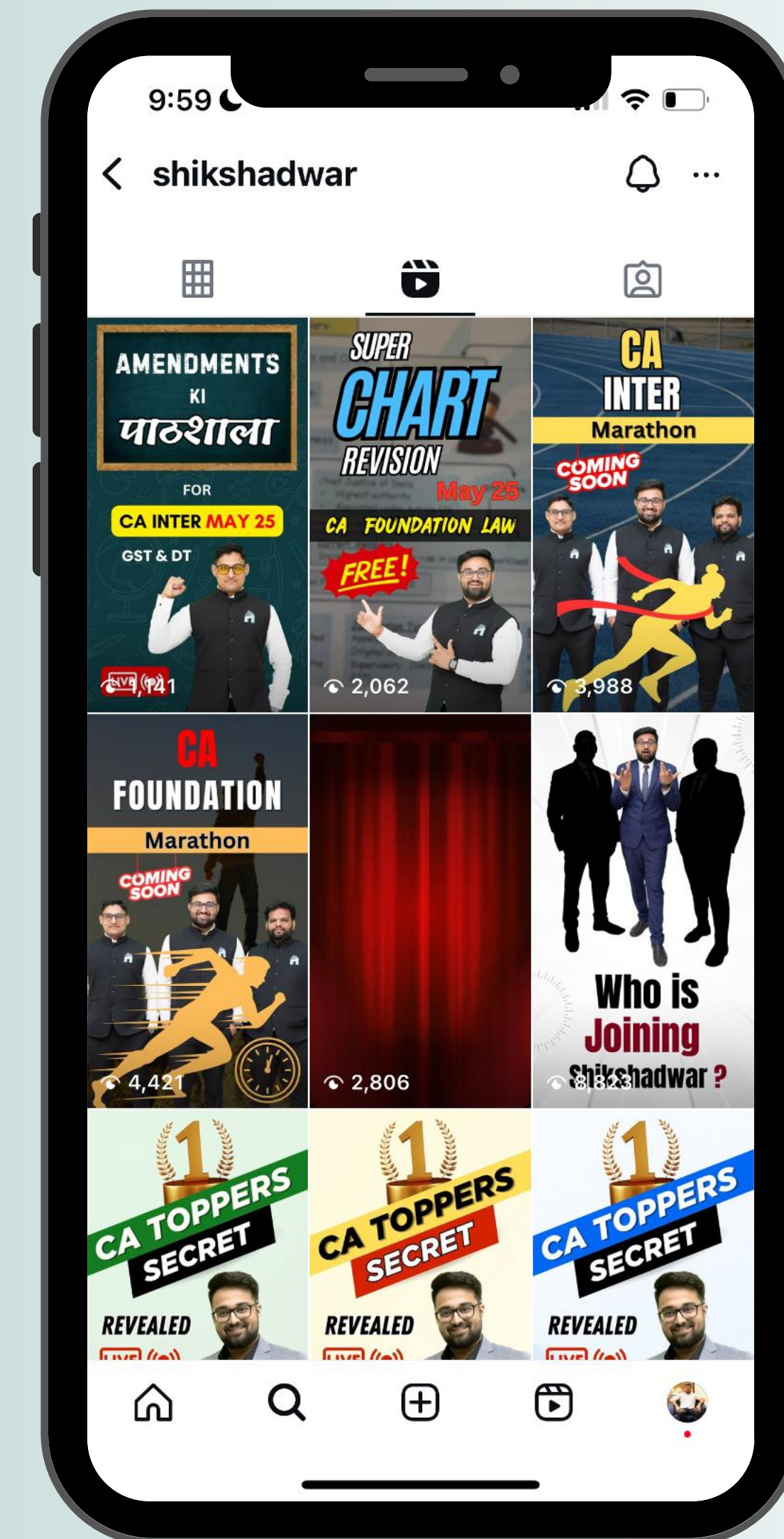
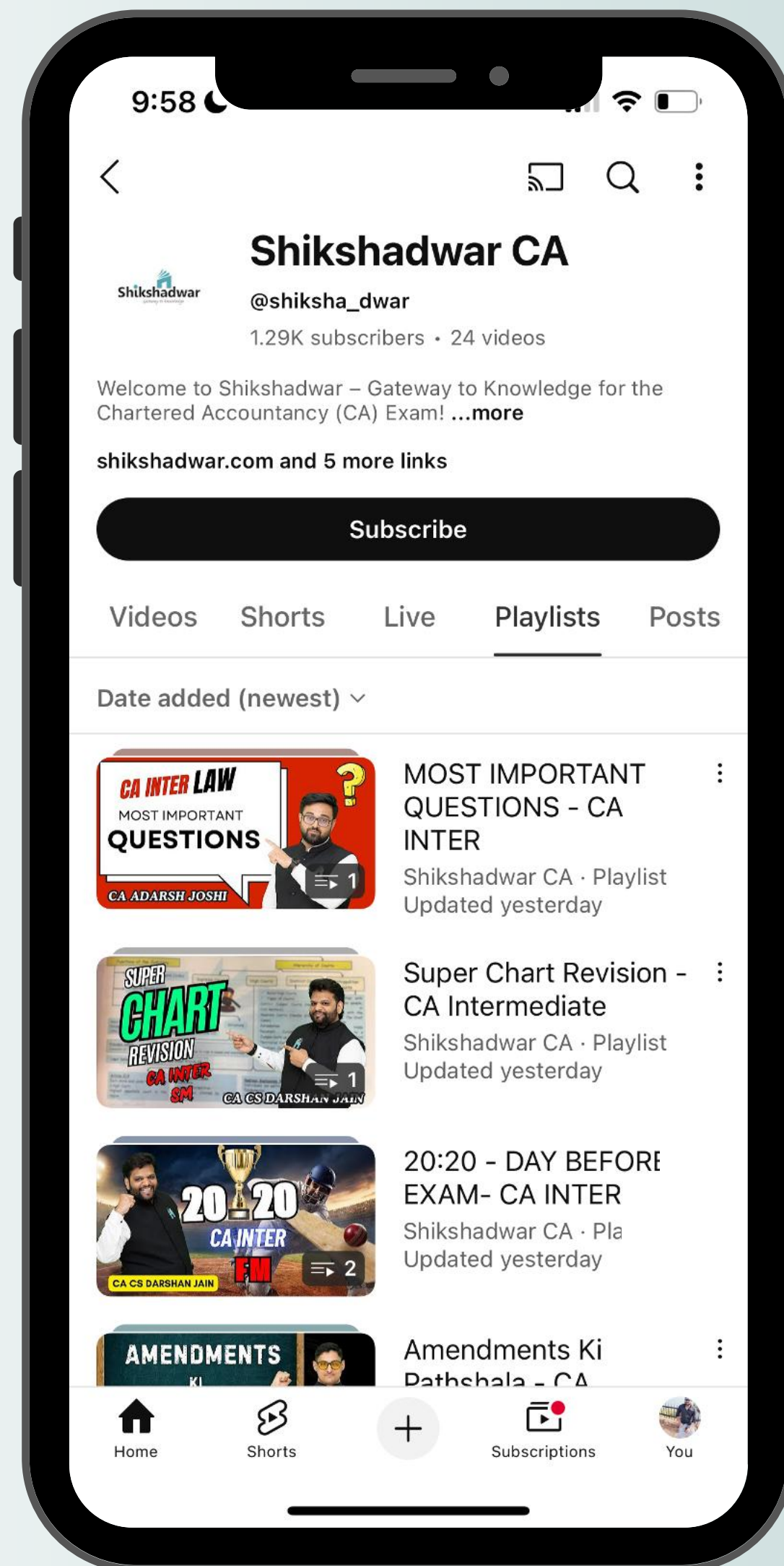
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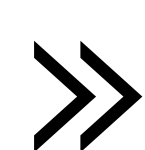
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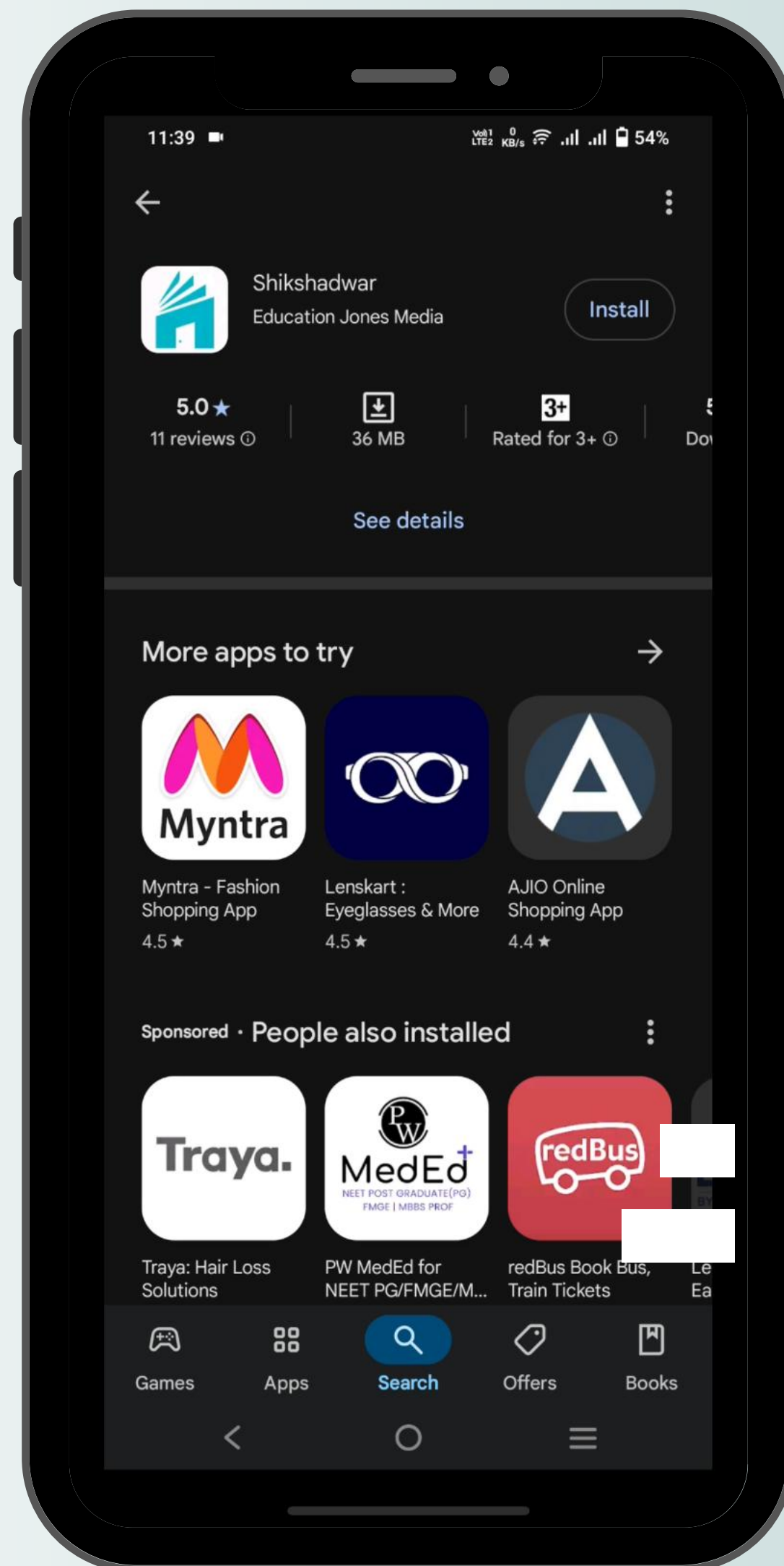
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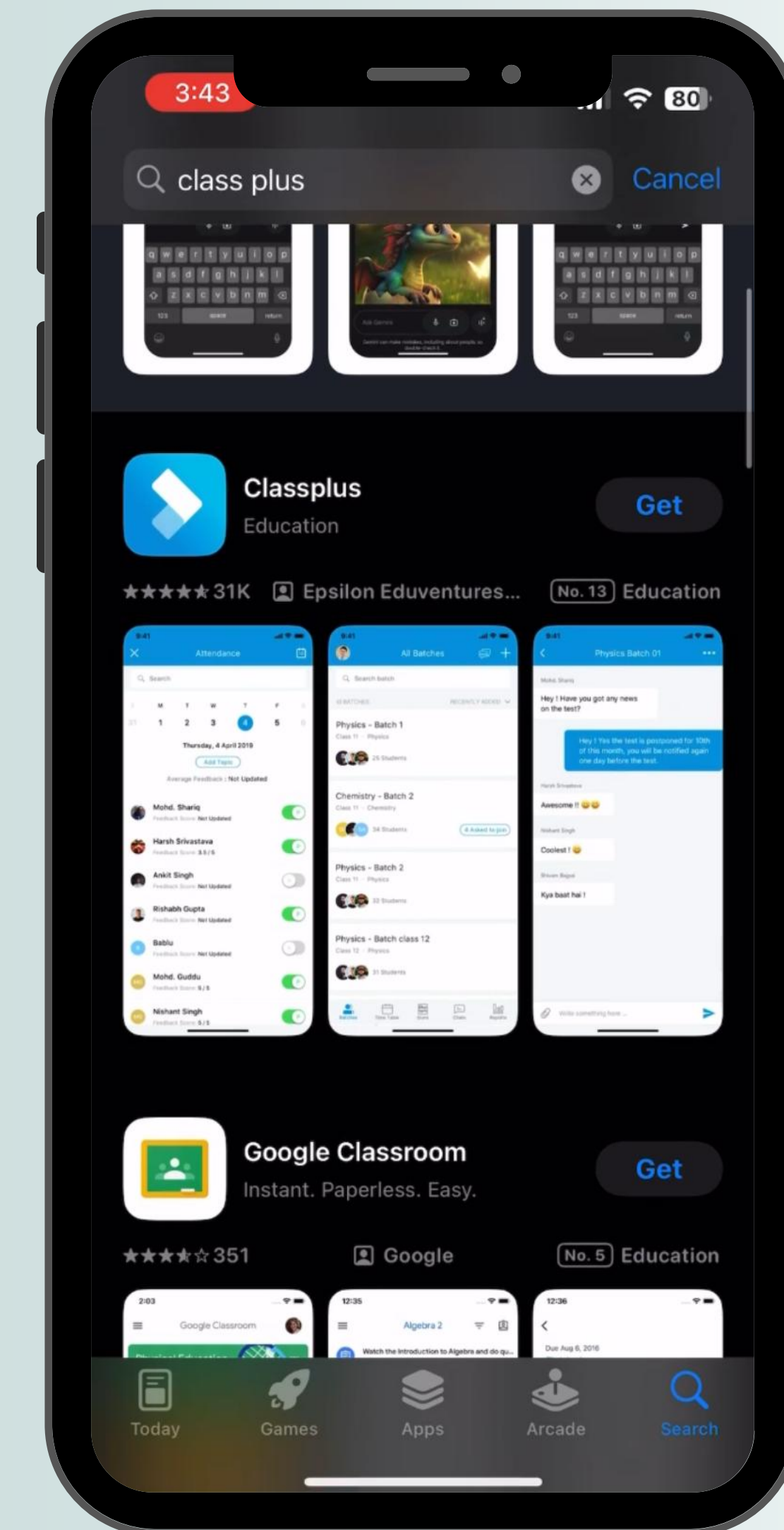
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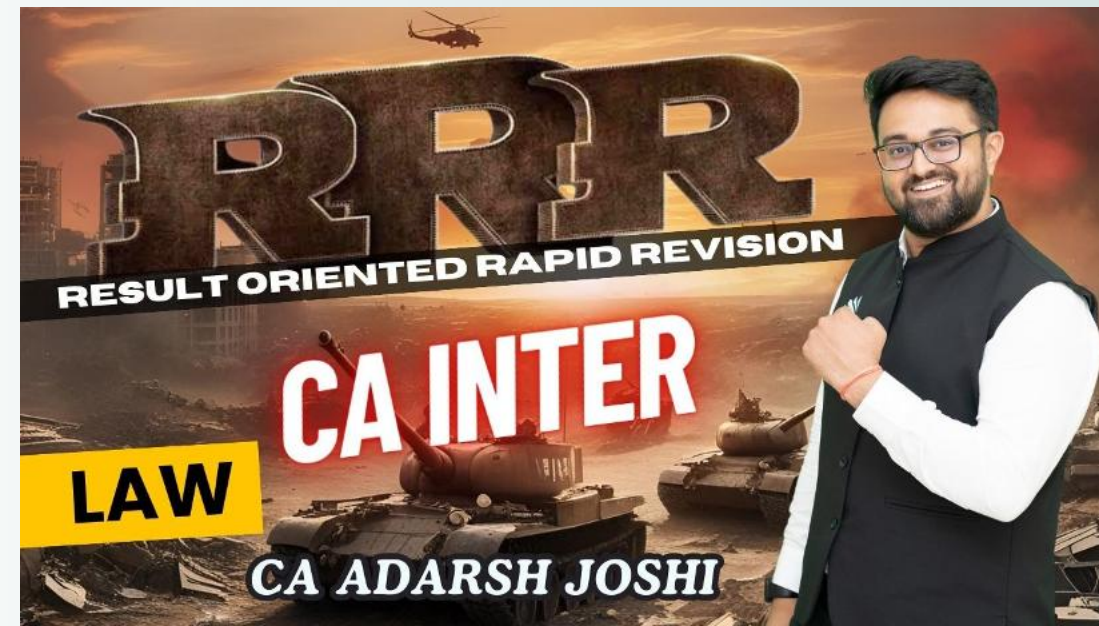
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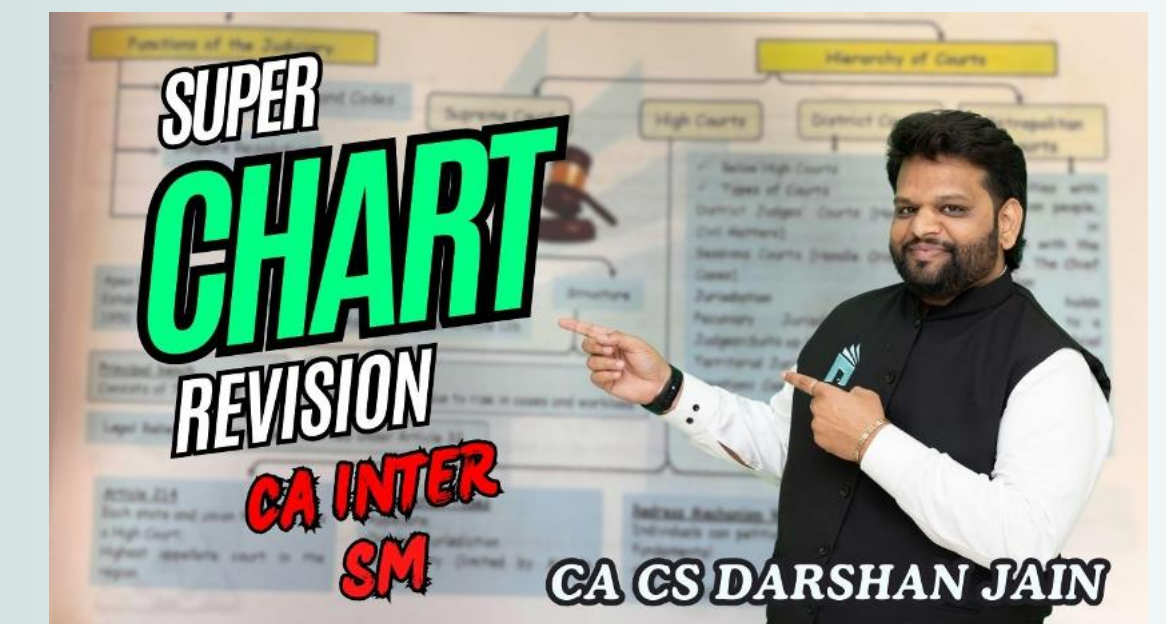
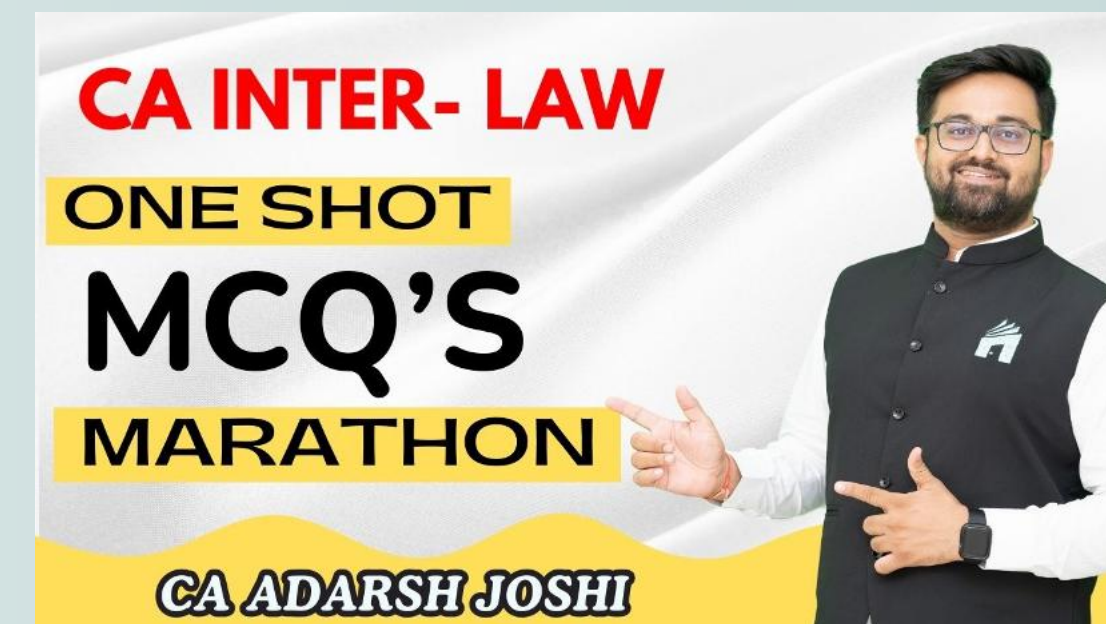
CA INTERMEDIATE MAY 25

Marathons Live Streams



RRR - Result Oriented Rapid Revision

Most Imp Questions



One Shot MCQ's Marathon

Super Chart Revision



Amendments Ki Pathshala

20 -20 Series

CA INTERMEDIATE MAY 25

Marathons Schedule With Links

DATE	TIME	EDUCATOR	SUBJECT	TOPICS	YOUTUBE LINK
17/4/2025	8.00 AM	CA ADARSH JOSHI	LAW	RRR	 WATCH NOW
18/4/2025	12.00 NOON	CA TUSHAR TAPARIA	GST	RRR	 WATCH NOW
19/4/2025	8.00 AM	CA CS DARSHAN JAIN	FM	RRR	 WATCH NOW
20/4/2025	8.00 AM	CA ADARSH JOSHI	LAW	ONE SHOT MCQ MARATHON	 WATCH NOW
21/4/2025	2.00 PM	CA TUSHAR TAPARIA	GST	GST AMENDMENTS & ITS IMPORTANT QUESTIONS	 WATCH NOW
23/4/2025	8.00 AM	CA CS DARSHAN JAIN	FM	ONE SHOT MCQ MARATHON	 WATCH NOW

DATE	TIME	EDUCATOR	SUBJECT	TOPICS	YOUTUBE LINK
24/4/2025	2.00 PM	CA TUSHAR TAPARIA	DT	DT AMENDMENTS & ITS IMPORTANT QUESTIONS	 WATCH NOW
27/4/2025	8.00 AM	CA CS DARSHAN JAIN	SM	ONE SHOT MCQ MARATHON	 WATCH NOW
4/5/2025	8.00 AM	CA ADARSH JOSHI	LAW	MOST IMPORTANT QUESTIONS	 WATCH NOW
6/5/2025	3.00 PM	CA TUSHAR TAPARIA	TAXATION	20-20	 WATCH NOW
12/5/2025	8.00 AM	CA CS DARSHAN JAIN	FM	20-20	 WATCH NOW
13/5/2025	8.00 AM	CA CS DARSHAN JAIN	SM	SUPER CHART REVISION	 WATCH NOW

DIVIDEND DECISIONS

WEIGHTAGE ANALYSIS

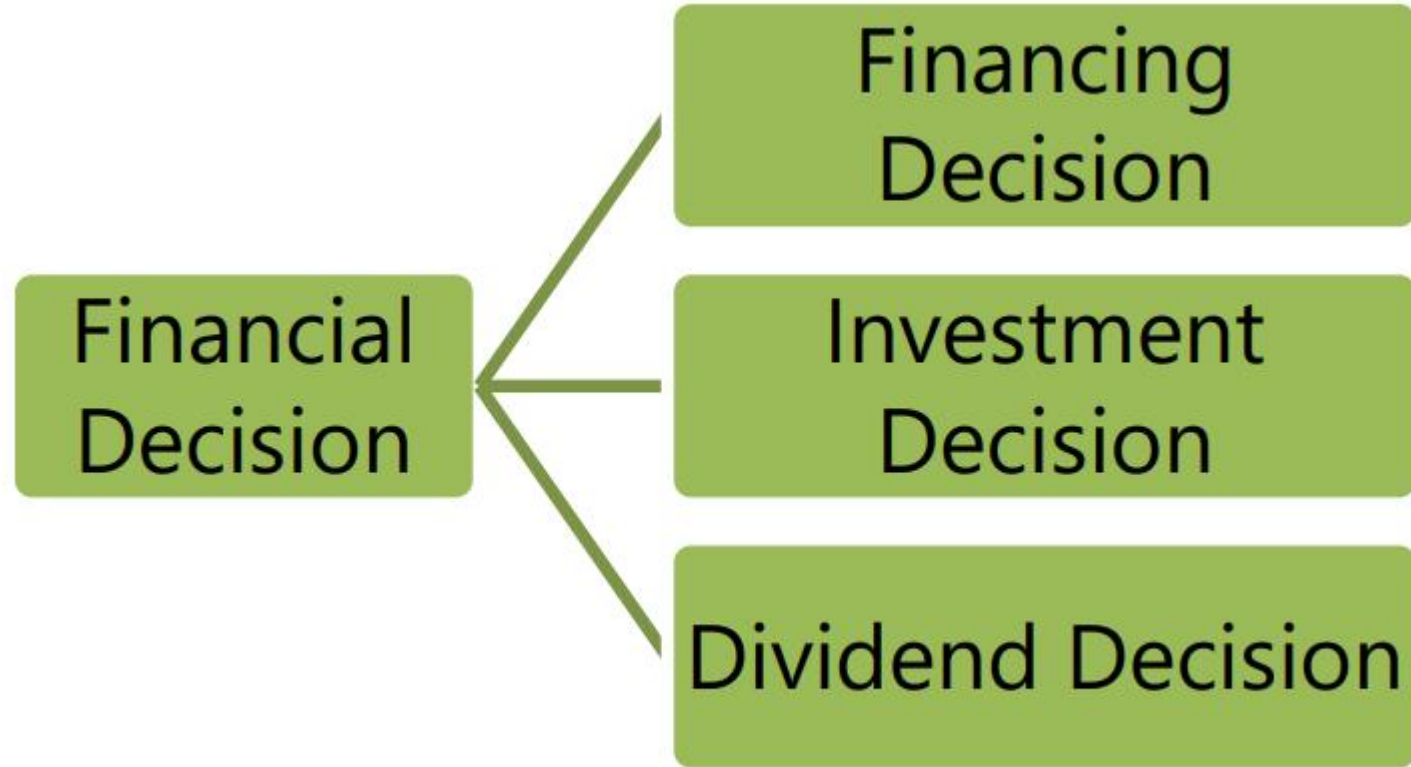
SR.NO	NAME OF TOPIC	May 18	Nov 18	May 19	Nov 19	Nov 20	Jan 21	Jul 21	Dec 21	May 22	Nov 22	May 23	Nov 23
1	MEANING , SCOPE AND OBJECTIVES OF FM	4	2		3	4	4	2	2	2	2		4
2	TYPES OF FINANCING	6	8	6	4	4	2	4	4	2	4	6	8
3	LEVERAGE ANALYSIS	5	10	10	10	12	10	10	10	10	10	7	5
4	COST OF CAPITAL		10	5	14	5	10	10	5	10	11	10	10
5	CAPITAL STRUCTURE	10	5	10		10	10	5	10	10	6	10	10
6	CAPITAL BUDGETING	28	10	15	20	5	12	12	2	14	20	10	10
7	RISK ANALYSIS IN CAPITAL BUDGETING	4	7	6	3	12	5	5	14	5	5	5	5

Sr.No	Name of Topic	May 18	Nov 18	May 19	Nov 19	Nov 20	Jan 21	Jul 21	Dec 21	May 22	Nov 22	May 23	Nov 23
8	ESTIMATION & FINANCING OF WORKING CAPITAL	10		10		10	5			5		4	5
9	MANAGEMENT OF ACCOUNT RECIEVABLES		10					9	5			5	
10	MANAGEMENT OF CASH & MARKETABLE SECURITIES				10		4		5		9		
11	MANAGAMENT OF PAYABLES												
12	MANAGEMENT OF INVENTORY									5			
13	DIVIDEND DECISION		5	5	5	5	5	5	5	4		5	10
14	RATIO ANALYSIS	5	5	5	5	5	5	10	10	5	5	10	5
	TOTAL	72	72	72	74	72	72	72	72	72	72	72	72

BIRDS EYE VIEW

- ☐ INTRODUCTION
- ☐ MEANING OF DIVIDEND
- ☐ FORMS OF DIVIDEND
- ☐ SIGNIFICANCE OF DIVIDEND POLICY
- ☐ DETERMINANTS OF DIVIDEND DECISION
- ☐ PRACTICAL CONSIDERATIONS IN DIVIDEND POLICY
- ☐ THEORIES OF DIVIDEND
- ☐ MM APPROACH
- ☐ WALTER'S MODEL
- ☐ GORDON'S MODEL
- ☐ GORDON'S REVISED MODEL
- ☐ LINTER'S MODEL
- ☐ STOCK SPLITS
- ☐ SHARE BUYBACK

INTRODUCTION



THEORIES OF DIVIDEND

Irrelevance Theory (Dividend is irrelevant)

M.M Approach

Relevance Theory (Dividend is relevant)

Walter's Model

Gordon's Model

Other Models

**Dividend Discount
Model (DDM)**

Linter's Model

MODIGLIANI AND MILLER (MM) APPROACH

Modigliani – Miller theory was proposed by Franco Modigliani and Merton Miller in 1961. MM approach is in support of the irrelevance of dividends i.e. firm's dividend policy has no effect on either the price of a firm's stock or its cost of capital.

According to MM hypothesis

- Market value of equity shares of a firm depends solely on its earning power and is not influenced by the manner in which its earnings are split between dividends and retained earnings.
- Market value of equity shares is not affected by dividend size.

MM hypothesis is primarily based on the arbitrage argument. Through the arbitrage process, MM hypothesis discusses how the value of the firm remains same whether the firm pays dividend or not.

ASSUMPTIONS OF (MM) APPROACH

- **Perfect capital markets:** The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes:** There are no taxes or no tax discrimination between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend income or capital gain. This assumption is necessary for the universal applicability of the theory, since the tax rates may be different in different countries.
- **Fixed investment policy:** It is necessary to assume that all investment should be financed through equity only, since implication after using debt as a source of finance may be difficult to understand. Further, the impact will be different in different cases.
- **No floatation or transaction cost:** Similarly, these costs may differ from country to country or market to market.

- **Risk of uncertainty does not exist.** Investors are able to forecast future prices and dividend with certainty and one discount rate is appropriate for all securities and all time periods.

POSSIBLE SITUATIONS UNDER (MM) APPROACH

- 1. Firm pays cash dividends from Reserve & Surplus:** In this situation, the shareholders receive cash (dividend) from the firm, thereby, reducing the cash balance of the firm. There is only transfer of asset (cash) from one pocket to another pocket of the shareholders with no net gain or loss. So, payment of cash dividend will not affect the value of the firm.
- 2. Firm pays cash dividends from new issue of shares:** If the firm does not have sufficient cash available for dividend, it will issue new shares and therefore will use the amount received for the payment of dividend. Here, shareholders receive cash (dividend) but suffer an equal amount of capital loss due to dilution of control over the assets of the company and dilution in earning per share. With the increase in the total number of shares, earning per share will also reduce. Thus, there is no change in the wealth of shareholders.

3. Firm does not pay any dividend: When the firm doesn't pay any dividend, but shareholder want to receive cash, then shareholder may sell part of his/her shareholding in market. Therefore, the cash received in the hands of the shareholder may be known as "home-made dividend". In this situation also, the shareholder receives cash (capital receipt) but lose in the form of capital loss due to dilution of control over the assets of the company among the existing and new shareholders. Hence, there will be no gain or loss and the value of the firm will remain unchanged.

1] Determination of Price (P_1)

2] NO. of additional shares to be issued
based on funds required.

Share Capital to be raised = Invest ment required - Earnings available

3] Determination of Value of firm.

DETERMINATION OF SHARE PRICE UNDER (MM) APPROACH

$$P_o = \frac{P_1 + D_1}{1 + K_e}$$

Where,

P_o = Price in the beginning of the period

P_1 = Price at the end of the period

D_1 = Dividend at the end of the period

K_e = Cost of equity/ rate of capitalization/ discount rate

DETERMINATION OF VALUE OF FIRM UNDER (MM) APPROACH

$$\text{Value of Firm} = \frac{(\text{No of Shares Outstanding at The Beginning} + \text{No of Shares issued to raise Funds}) * \text{Price at The End of Period} - \text{Investment Req.} + \text{Earnings}}{(1+K_e)}$$

ILLUSTRATION 1

AB Engineering Ltd. belongs to a risk class for which the capitalization rate is 10%. It currently has outstanding 10,000 shares selling at ₹ 100 each. The firm is contemplating the declaration of a dividend of ₹ 5 share at the end of the current financial year. It expects to have a net income of ₹ 1,00,000 and has a proposal for making new investments of ₹ 2,00,000. CALCULATE the value of the firm when dividends (i) are not paid (ii) are paid.

CASE A

Value Of Firm When Dividends Are Not Paid

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

$$100 = \frac{P_1 + 0}{1 + 0.10}$$

$$\therefore 110 = P_1 + 0$$

$$\therefore \underline{\underline{P_1 = 110}}$$

Value of firm

$$\text{Value of firm} = \text{No. of shares O/S at the beginning} + \text{No. of shares to be issued} \times P_1$$

$$- \text{Investment required at beginning}$$

$$= \left[10000 + \left(\frac{200000 - 100000}{110} \right) \right] \times 110 - \frac{200000 + 100000}{140 \cdot 10}$$

$$= \frac{(10000 + 909.09) \times 110 - 200000 + 100000}{1.10}$$

1
1

10 00 000

CASE B

Value Of Firm When Dividends Are Paid

$$P_0 = \frac{P_1 + D_1}{1 + k_e}$$

$$100 = \frac{P_1 + 5}{1 + 0.10}$$

$$110 = P_1 + 5$$

$$\therefore P_1 = \underline{\underline{105}}$$

Value of Firm

$$\text{Value of firm} = \frac{(\text{No. of shares outstanding} + \text{No. of shares to be issued}) \times P_1 - \text{Investment required} + \text{Earnings}}{1 + K_e}$$

$$= \frac{(10\,000 + (200\,000 - 5000) / 105) \times 105 - 200\,000 + 100\,000}{1 + 0.10}$$

$$= \underline{\underline{10\,00\,000}}$$

ILLUSTRATION 2

RST Ltd. has a capital of ₹ 10,00,000 in equity shares of ₹ 100 each. The shares are currently quoted at par. The company proposes to declare a dividend of ₹ 10 per share at the end of the current financial year. The capitalization rate for the risk class of which the company belongs is 12%. COMPUTE market price of the share at the end of the year, if

- (i) dividend is not declared*
- (ii) dividend is declared*

Assuming that the company pays the dividend and has net profits of ₹ 5,00,000 and makes new investments of ₹ 10,00,000 during the period, CALCULATE number of new shares to be issued? Use the MM model.

CASE A

Market Price of Share When Dividend is not Declared

$$P_0 \approx \frac{P_1 + D_1}{1 + k_e}$$

$$100 = \frac{P_1 + 0}{1 + 0.12}$$

$$\therefore P_1 \approx 112$$

CASE B

Market Price of Share When Dividend is Declared

$$P_0 \approx \frac{P_1 + D_1}{1 + k_e}$$

$$100 \approx \frac{P_1 + 10}{1 + 0.12}$$

$$112 \approx P_1 + 10$$

$$\therefore P_1 \approx 112 - 10 \\ \approx 102$$

STATEMENT SHOWING NO OF SHARES TO BE ISSUED WHEN DIVIDEND IS PAID

SR.NO	PARTICULARS	AMOUNT/NO.
A	Earnings	500000
B	less- Dividend Paid (10000×10)	100000
C	Earnings available for dividend (A-B)	400000
D	Total funds required	1000000
E	Additional funds to be raised (D-C)	600000
F	Price at which shares will be issued	102
G	No of shares to be issued (E/F)	5882.35 say 5883 shares

ILLUSTRATION 3 RTP NOV 22

Ordinary shares of a listed company are currently trading at ₹ 10 per share with two lakh shares outstanding. The company anticipates that its earnings for next year will be ₹ 5,00,000. Existing cost of capital for equity shares is 15%. The company has certain investment proposals under discussion which will cause an additional 26,089 ordinary shares to be issued if no dividend is paid or an additional 47,619 ordinary shares to be issued if dividend is paid.

Applying the MM hypothesis on dividend decisions, CALCULATE the amount of investment and dividend that is under consideration by the company.

Price when No dividend is paid.

$$P_0 = \frac{P_1 + D_1}{1 + r_e}$$

$$10 = \frac{P_1 + 0}{1.1025}$$

$$\therefore P_1 = \underline{\underline{11.50}}$$

$$\begin{aligned}
 \text{Funds to be raised} &= \text{No. of shares to be issued} \times P1 \\
 &= 26089 \times 11.50 \\
 &= 300000
 \end{aligned}$$

$$\begin{aligned}
 \text{Funds to be raised} &= \text{Investment} - \text{Earnings} \\
 300000 &= x - 500000
 \end{aligned}$$

$$\therefore \text{Total Investment} = \underline{\underline{800000}}$$

Value of Firm when
Dividend is not
Paid = Value of Firm when
Dividend is Paid.

$$\begin{aligned} & \left(\frac{200000 + 26089}{1 + 0.15} - \frac{800000 + 500000}{1.15} \right) \times 11.50 \\ & = \left(\frac{200000 \times 47619}{1.15} - \frac{800000 + 500000}{1.15} \right) \times P_1 \end{aligned}$$

$$226089 \times 11.50 = 247619 \times P_1$$

$$2600023 = 247619 \times P_1$$

$$\therefore P_1 = 10.50$$

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

$$10 = \frac{10 \cdot 50 + x}{1 + 0.15}$$

$$11 \cdot 50 - 10 \cdot 50 = x$$

$$\therefore x = 1$$

∴ Dividend under Consideration
= 1 per share.

ILLUSTRATION 4

ZX Ltd. has a paid-up share capital of Rs.1,00,00,000, face value of Rs.100 each. The current market price of the shares is Rs.100 each. The Board of Directors of the company has an agenda of meeting to pay a dividend of 50% to its shareholders. The company expects a net income of Rs.75,00,000 at the end of the current financial year. Company also plans for a capital expenditure for the next financial year for a cost of Rs.95,00,000, which can be financed through retained earnings and issue of new equity shares.

Company's desired rate of investment is 15%.

Required:

Following the Modigliani- Miller (MM) Hypothesis, DETERMINE value of the company when:

- (i) It does not pay dividend and
- (ii) It does pay dividend

When a Company does not pay Dividend

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

$$100 = \frac{P_1 + 0}{1.15}$$

$$\therefore P_1 = 115$$

$$\text{Value of firm} = \frac{(\text{No. of shares outstanding} + \text{Additional shares issued}) \times P_1 - \text{Investment required} + \text{Earnings}}{1 + K_2}$$

$$= \frac{(100000 + \frac{200000}{1.15}) \times 1.15 - 950000 + 750000}{1.15}$$

11

100 00 000

When a Company Pays Dividend.

$$P_0 = \frac{P_1 + D_1}{1 + r_e}$$

$$100 = \frac{P_1 + 50}{1.15}$$

$$115 - 50 = P_1$$

$$\therefore P_1 = 65$$

$$\text{Value of firm} = \frac{\left(\begin{array}{l} \text{No. of shares} \\ \text{Outstanding} \end{array} + \begin{array}{l} \text{Additional} \\ \text{shares} \\ \text{Issued} \end{array} \right) \times P_1}{\text{Investment required} + \text{Earnings}}$$

1 + 15%

$$= \frac{(100000 + 700000) \times 65}{950000 + 750000}$$

1.15

$$= 10000000$$

WALTER'S MODEL

As per Walter's Model, in the long run, share prices reflect only the present value of expected dividends. Retentions influence stock prices only through their effect on further dividends.

As per Walter's Model, two factors which influence the market price of a share are (i) Dividend per share and (ii) Relationship between IRR and K_e .

0 %
100 %

ASSUMPTION UNDER WALTER'S MODEL

- All investment proposals of the firm are to be financed **through retained earnings** only.
- ' r ' rate of return & ' K_e ' cost of **capital are constant**.
- **Perfect capital markets**: The firm operates in a market in which all investors are rational and information is freely available to all.
- **No taxes or no tax discrimination** between dividend income and capital appreciation (capital gain). It means there is no difference in taxation of dividend income or capital gain. This assumption is necessary for the universal applicability of the theory, since, the tax rates may be different in different countries.
- **No floatation or transaction cost**: Similarly, these costs may differ country to country or market to market.
- The firm has **perpetual life**

DETERMINATION OF PRICE UNDER WALTER'S MODEL

$$\text{Market Price (P)} = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

Where,

P = Market Price of the share.

E = Earnings per share.

D = Dividend per share.

K_e = Cost of equity/ rate of capitalization/ discount rate.

r = Internal rate of return/ return on investment

$$= \frac{DPS + \frac{r}{K_e}(EPS - DPS)}{K_e}$$

DETERMINATION OF OPTIMUM PAYOUT RATIO UNDER WALTER'S MODEL

Company	Condition of r vs K_e	Correlation between Size of Dividend and Market Price of share	Optimum dividend payout ratio
Growth	$r > K_e$	Negative	Zero
Constant	$r = K_e$	No correlation	Every payout ratio is optimum
Decline	$r < K_e$	Positive	100%

Growth Oriented Company: In this condition, a company is able to invest/utilize the fund in a better manner. Therefore, shareholders can accept low dividend because their value of share would be higher.

Declining Company: In this condition, a company is not in a position to cover the cost of capital. Therefore, shareholders would prefer a higher dividend so that they can utilize their funds elsewhere in more profitable opportunities.

ILLUSTRATION 5

The following information pertains to M/s XY Ltd.

<i>Earnings of the Company</i>	<i>₹ 5,00,000</i>
<i>Dividend Payout ratio</i>	<i>60%</i>
<i>No. of shares outstanding</i>	<i>1,00,000</i>
<i>Equity capitalization rate</i>	<i>12%</i>
<i>Rate of return on investment</i>	<i>15%</i>

CALCULATE:

- (i) Market value per share as per Walter's model.*
- (ii) Optimum dividend payout ratio according to Walter's model and the market value of Company's share at that payout ratio.*

(i) Market value Per Share As Per Walter's Model

$$\text{EPS} = \frac{500000}{100000 \text{ shares}} = 5$$

$$\text{DPS} = 5 \times 60\% = 3$$

$$P = \frac{\text{DPS} + \frac{r}{k_e} (\text{EPS} - \text{DPS})}{k_e}$$

$$= \frac{3 + \frac{0.15}{0.12} (5 - 3)}{0.12}$$

$$= 45.83$$

(ii) Optimum Payout Ratio & Market Price of Share at that Payout Ratio

As r (0.15) $>$ k_e (0.12) Optimum payout ratio shall be zero

$$P = \frac{DPS + \frac{r}{k_e} (EPS - DPS)}{1}$$

$$= \frac{0 + \frac{0.15 k_e}{0.12} (\hat{S} - 0)}{0.12}$$

11

52.08

ILLUSTRATION 6

The following figures are collected from the annual report of XYZ Ltd.:

Net Profit	₹ 30 lakhs
<i>Outstanding 12% preference shares</i>	<i>₹ 100 lakhs</i>
<i>No. of equity shares</i>	<i>3 lakhs</i>
<i>Return on Investment</i>	<i>20%</i>
<i>Cost of capital i.e. (K_e)</i>	<i>16%</i>

COMPUTE the approximate dividend pay-out ratio so as to keep the share price at ₹ 42 by using Walter's model?

$$P \approx DPS + \frac{x}{k_e} (EPS - DPS)$$

$$k_e$$

$$42 \approx x + \frac{0.20}{0.16} (6 - x)$$

(MNI)

$$0.16$$

$$6.72 = x + 1.25(6-x)$$

$$6.72 = x + 7.5 - 1.25x$$

$$6.72 - 7.5 = -0.25x$$

$$\therefore x = \frac{0.78}{0.25}$$
$$= 3.12$$

$$\text{DP ratio} \quad \text{''} \quad \frac{\text{DPS}}{\text{EPS}} \times 100$$

$$\text{''} \quad \frac{3.12}{6} \times 100$$

$$\text{''} \quad \underline{\underline{52\%}}$$

WN 1 – Statement Showing Computation of EPS

SR.NO	PARTICULARS	AMOUNT
A	Profit after Tax	3000000
B	Less- Preference Dividend $(100000 \times 12\%)$	120000
C	EATs $(A - B)$	1800000
D	NO. of Eq. shares (given)	300000
E	EPS (C/D)	6 Per share

GORDON'S MODEL

According to Gordon's model, when IRR is greater than cost of capital, the price per share increases and dividend pay-out decreases. On the other hand when IRR is lower than the cost of capital, the price per share decreases and dividend pay-out increases.

ASSUMPTIONS UNDER GORDON'S MODEL

- Firm is an all equity firm i.e. **no debt**.
- **IRR will remain constant**, because change in IRR will change the growth rate and consequently the value will be affected. Hence this assumption is necessary.
- **K_e will remains constant**, because change in discount rate will affect the present value.
- **Retention ratio** (b), once decide upon, is **constant** i.e. constant dividend payout ratio will be followed.
- **Growth rate** ($g = br$) is also **constant**, since retention ratio and IRR will remain unchanged and growth, which is the function of these two variable will remain unaffected.
- $K_e > g$, this assumption is necessary and based on the principles of series of sum of geometric progression for 'n' number of years.
- All investment proposals of the firm are to be **financed through retained earnings** only.

DETERMINATION OF PRICE UNDER GORDON'S MODEL

$$P_0 = \frac{E_1(1-b)}{K_e - br}$$

retention ratio

$$P_0 = \frac{EPS \times \text{Payout ratio}}{K_e - br}$$

$$= \frac{DPS}{K_e - br}$$

Payout ratio & retention ratio & rate of return

Where,

P_0 = Price per share

E_1 = Earnings per share

b = Retention ratio; ($1 - b$ = Payout ratio)

K_e = Cost of capital

r = IRR

br = Growth rate (g)

DETERMINATION OF OPTIMUM PAYOUT RATIO UNDER GORDON'S MODEL

Company	Condition of r vs K_e	Optimum dividend payout ratio
Growth	$r > K_e$	Zero
Constant	$r = K_e$	There is no optimum ratio
Declining	$r < K_e$	100%

GORDON'S REVISED MODEL

**Bird-in-hand theory of
Gordon has two arguments**

**Investors are
risk averse**

**Investors put a
premium on certain
return and discount on
uncertain return**

Gordon argues that what is available at present is preferable to what may be available in the future. As investors are rational, they want to avoid risk and uncertainty. They would prefer to pay a higher price for shares on which current dividends are paid. Conversely, they would discount the value of shares of a firm which postpones dividends. The discount rate would vary with the retention rate.

DETERMINATION OF PRICE UNDER GORDON'S REVISED MODEL

$$\text{Market price per share}(P_0) = \left[\frac{D_0(1+g)}{K_e - g} \right]$$



A handwritten version of the formula $\frac{D_1}{K_e - g}$ is enclosed in a hand-drawn circle. The handwriting is in black ink on a white background.

Where,

- P_0 = Market price per share (ex-dividend)
- D_0 = Current year dividend
- g = Constant annual growth rate of dividends
- K_e = Cost of equity capital (expected rate of return).

direct growth rate

The formula given by Gordon shows that when the rate of return (r) is greater than the discount rate (K_e), the price per share decreases as the dividend Payout ratio decreases and the vice-versa. On the other hand, if the rate of return (r) is less than discount rate (K_e), the price per share increases as the dividend Payout ratio increases and vice versa. The price per share remains unchanged where the rate of return and discount rate are equal.

ILLUSTRATION 7

The following figures are collected from the annual report of XYZ Ltd.:

Net Profit	₹ 30 lakhs
<i>Outstanding 12% preference shares</i>	<i>₹ 100 lakhs</i>
<i>No. of equity shares</i>	<i>3 lakhs</i>
<i>Return on Investment</i>	<i>20%</i>
<i>Cost of capital i.e. (K_e)</i>	<i>16%</i>

CALCULATE price per share using Gordon's Model when dividend pay-out is (i) 25%; (ii) 50% and (iii) 100%.

Case (i) 150

(ii) 50

(iii) 87.50

CASE A

$$P_0 = \frac{\text{EPS} \times \text{Payout ratio}}{K_e - (br)}$$

$$= \frac{6 \times 25\%}{0.16 - (0.75 \times 0.20)}$$

$$= \frac{1.5}{0.16 - 0.15}$$

$$= 150$$

CASE B

$$\begin{aligned} P_0 &= \frac{\text{EPS} \times \text{Payout ratio}}{k_e - (br)} \\ &= \frac{6 \times 50\%}{0.16 - (0.50 \times 0.20)} \\ &= \frac{3}{0.16 - 0.10} \\ &= \frac{3}{0.06} = \underline{\underline{50}} \end{aligned}$$

CASE C

$$\begin{aligned} P_0 &= \frac{\text{EPS} \times \text{Payout ratio}}{K_e - br} \\ &= \frac{6 \times 100\%}{0.16} \\ &= \frac{6}{0.16} \\ &= \underline{\underline{37.50}} \end{aligned}$$

WN 1 – Statement Showing Computation of EPS

SR.NO	PARTICULARS	AMOUNT
A	Profit after Tax	3000000
B	Less- Preference Dividend $(100000 \times 12\%)$	120000
C	EATs $(A - B)$	1800000
D	NO. of Eq. shares (given)	300000
E	EPS (C/D)	6 Per share

ILLUSTRATION 8

With the help of following figures CALCULATE the market price of a share of a company by using:

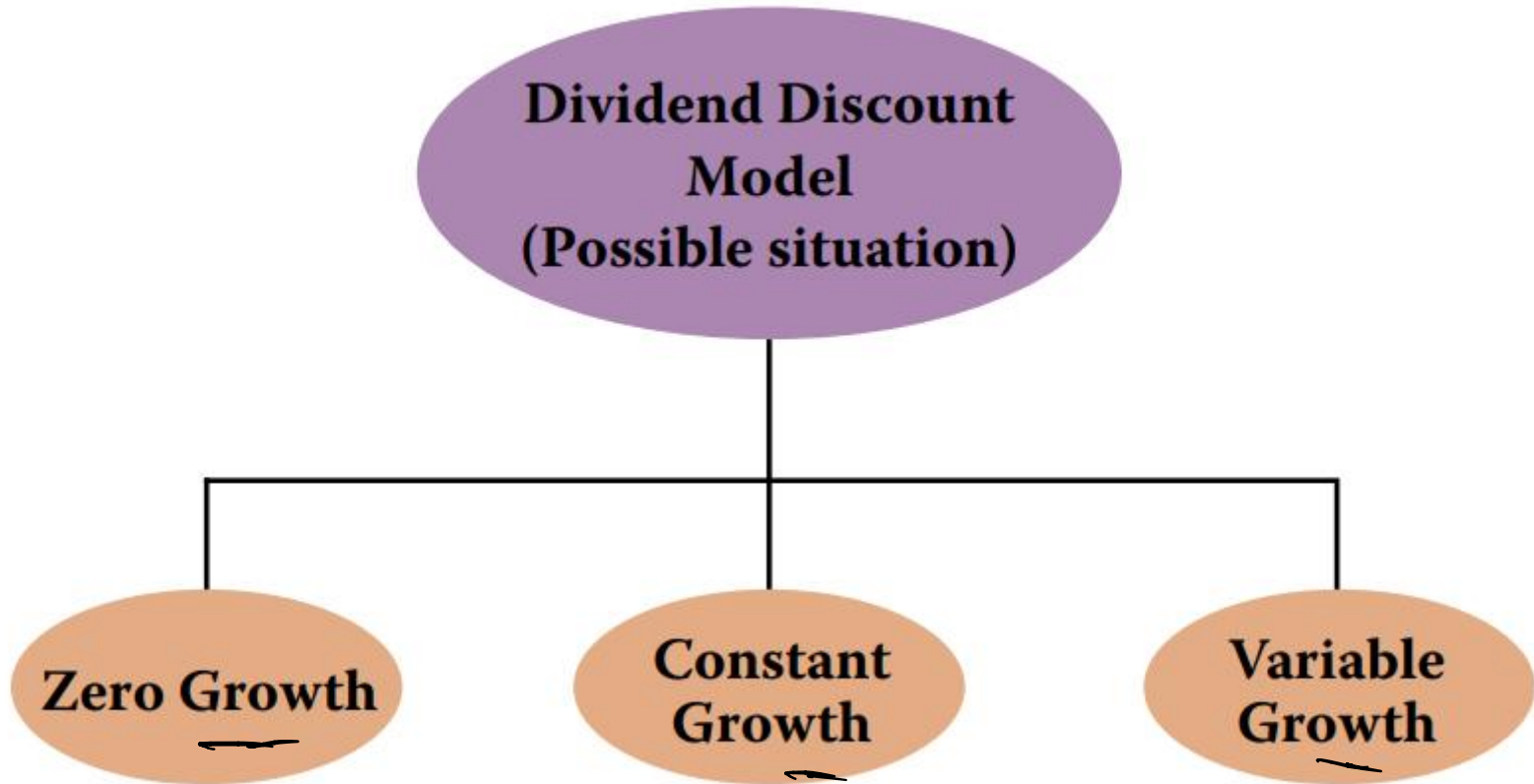
- (i) Walter's formula
- (ii) Dividend growth model (Gordon's formula)

Earnings per share (EPS)	₹ 10
Dividend per share (DPS)	₹ 6
Cost of capital (K_e)	20%
Internal rate of return on investment	25%
Retention Ratio	40%

Walter's = 55

Gordon's = 60

DIVIDEND DISCOUNT MODEL



ZERO GROWTH RATE

Zero growth rates: It assumes all dividend paid by a stock remains same.

$$\text{Stock's intrinsic Value} = \frac{\text{Annual dividend}}{\text{Required rate of return}}$$

$$\text{i.e. } P_0 = \frac{D}{K_e} \quad K_e = \frac{D}{P_0}$$

Where,

D = Annual dividend

K_e = Cost of capital

P_0 = Current Market price of share

$$P_0 = \frac{D}{K_e}$$

ILLUSTRATION 9

X Ltd. is a no growth company, pays a dividend of ₹ 5 per share. If the cost of capital is 10%, COMPUTE the current market price of the share?

$$K_e = \frac{D}{P_0}$$

$$0.10 = \frac{S}{P_0}$$

$$\therefore P_0 = \$0$$

CONSTANT GROWTH RATE

Constant Growth Rate (Gordon's Growth Model): It assumes constant growth of dividend.

$$\text{Market price per share (P)} = \frac{D_0(1+g)}{K_e - g}$$

Where

P = Market price per share

D_0 = current year dividend

g = growth rate of dividends

K_e = cost of equity capital/ expected rate of return

$$K_e = \frac{D_1}{P_0} + g$$
$$K_e - g = \frac{D_1}{P_0}$$
$$P_0 = \frac{D_1}{K_e - g}$$

ILLUSTRATION 10

XYZ is a company having share capital of ₹ 10 lakhs of ₹ 10 each. It distributed current dividend of 20% per annum. Annual growth rate in dividend expected is 2%. The expected rate of return on its equity capital is 15%. CALCULATE price of share applying Gordon's growth Model.

$$k_e = \frac{D1}{P0} + G$$

$$0.15 = \frac{2.04}{P0} + 0.02$$

$$0.15 - 0.02 = \frac{2.04}{P0}$$

$$0.13 P0 = 2.04$$

$$\therefore P0 = 15.69$$

VARIABLE GROWTH RATE

Variable growth rate: Variable-growth rate models (multi-stage growth models) can take many forms, even assuming the growth rate is different for every year.



However, the most common form is one that assumes 3 different rates of growth: an initial high rate of growth, a transition to slower growth, and lastly, a sustainable, steady rate of growth.



Basically, the constant-growth rate model is extended, with each phase of growth calculated using the constant-growth method, but using 3 different growth rates of the 3 phases.



The present values of each stage are added together to derive the intrinsic value of the stock.



Sometimes, even the capitalization rate, or the required rate of return, may be varied if changes in the rate are projected.

ILLUSTRATION 11

A firm had paid dividend at ₹ 2 per share last year. The estimated growth of the dividends from the company is estimated to be 5% p.a. DETERMINE the estimated market price of the equity share if the estimated growth rate of dividends (i) rises to 8%, and (ii) falls to 3%. Also FIND OUT the present market price of the share, given that the required rate of return of the equity investors is 15%.

CASE A – Present Market Price at a Growth Rate of 5%

$$P_0 = \frac{P_1}{K_c - g}$$
$$= \frac{2.10}{0.15 - 0.05}$$
$$= 21$$

CASE B – Market Price at a Growth Rate of 8%

$$\begin{aligned} P_0 &\approx \frac{121}{K_e - g} \\ &\approx \frac{2.16}{0.15 - 0.08} \\ &\approx \frac{2.16}{0.07} \\ &\approx \underline{\underline{30.86}} \end{aligned}$$

CASE C – Market Price at a Growth Rate of 3%

$$P_0 = \frac{D_1}{K_c - g}$$
$$= \frac{2.06}{0.15 - 0.03}$$
$$= \frac{2.06}{0.12}$$
$$= 17.17$$

ILLUSTRATION 12

A&R Ltd. is a large-cap multinational company listed in BSE in India with a face value of ₹ 100 per share. The company is expected to grow @ 15% p.a. for next four years then 5% for an indefinite period. The shareholders expect 20% return on their share investments. Company paid ₹ 120 as dividend per share for the FY 2020-21. The shares of the company traded at an average price of ₹ 3,122 on last day. FIND out the intrinsic value of per share and state whether shares are overpriced or underpriced.

Price of share = PV of future dividends

1140

3122 = 1982

STATEMENT SHOWING COMPUTATION OF INTRINSIC VALUE OF SHARES

YEAR	PARTICULARS	CASH FLOW	PVF AT 20%	PV OF CASH FLOW
1	Dividend $(120 + 15\%)$	138	0.833	114.95
2	Dividend $(138 + 15\%)$	158.70	0.694	110.14
3	Dividend $(158.70 + 15\%)$	182.51	0.579	105.67
4	Dividend $(182.51 + 15\%)$	209.89	0.482	101.17
4	Price of share at the end of 4th year with constant growth for perpetuity	1469.20	0.482	708.15
		DS $\frac{KE - g}{209.89 + 15\%}$ $15.20 - 0.05$		1140.08

Conclusion :- The current market price of share is 3122 & the intrinsic value of share is 1140 (approx) hence it can be said that share is currently overpriced by Rs. 1982 (3122 - 1140)

ILLUSTRATION 13 (PYP DEC 2021) 5 MARKS

X Ltd. is a multinational company. Current market price per share is Rs. 2,185. During the F.Y. 20-21, the company paid Rs. 140 as Dividend per share. The company is expected to grow @12% p.a. for next four years, then 5% p.a. for an indefinite period. Expected rate of return of shareholders is 18% p.a..

- 1) Find out intrinsic value per share.
- 2) State whether shares are overpriced or underpriced.

Year	1	2	3	4	5
Discounting Factor @18%	0.847	0.718	0.608	0.515	0.436

STATEMENT SHOWING COMPUTATION OF INTRINSIC VALUE OF SHARES

YEAR	PARTICULARS	CASH FLOW	PVF AT 20% 18%	PV OF CASH FLOW
1	Dividend	156.80	0.847	132.81
2	Dividend	175.62	0.718	126.10
3	Dividend	196.69	0.608	119.59
4	Dividend	220.29	0.515	113.45
4	Price at end of 4th year	1779.27 231.30 <u>0.18-0.05</u>	0.515	916.32
				1408.27

Conclusion:- The intrinsic value of share is 1408 & current market price is 2185, Thus it can be said that share is overpriced by 777
(2185 - 1408)

ILLUSTRATION 14

In May 2020, shares of RT Ltd. was sold for ₹ 1,460 per share. A long term earnings growth rate of 7.5% is anticipated. RT Ltd. is expected to pay dividend of ₹ 20 per share.

- (i) CALCULATE rate of return an investor can expect to earn assuming that dividends are expected to grow along with earnings at 7.5% per year in perpetuity?
- (ii) It is expected that RT Ltd. will earn about 10% on retained earnings and shall retain 60% of earnings. In this case, STATE whether, there would be any change in growth rate and cost of Equity?

c1) Computation of rate of return by
an investor

Expectation of an investor = K_e

$$\therefore K_e = \frac{D_1}{P_0} + G$$

$$= \frac{20 + 7.5\%}{1460} + 0.075$$

$$= 0.0897 \quad \text{that is } 8.97\%$$

cii) Computation of growth rate

Retention ratio = 60%.

rate of return (r) = 10%.

$$\begin{aligned}\therefore g &= b r \\ &= 0.60 \times 0.10 \\ &= 0.06\end{aligned}$$

$\therefore$ As per Gordon's growth model growth rate shall be 6%.

(iii) Computation of K_c at 60% retention ratio & growth rate of 6%.

$$K_c = \frac{D_1}{P_0} + G$$

$$= \frac{\text{Expected rates}}{1460} + 0.06$$

$$= \frac{80 \times 46\%}{1460} + 0.06$$

$$\approx \frac{32}{1460} + 0.06$$

$$\approx 0.0819$$

that is 8.19%.

11/11 Computation of existing payout ratio & Earnings

Existing growth rate = 7.5% ^{Per share}

rate of return = 10%

∴ Existing retention ratio as per Gordon's growth model.

$$g = b \times r$$

$$0.075 = b \times 0.10$$

$$\therefore b = 0.75$$

∴ Existing Retention ratio = 75%

∴ Existing Payout ratio = 25%.

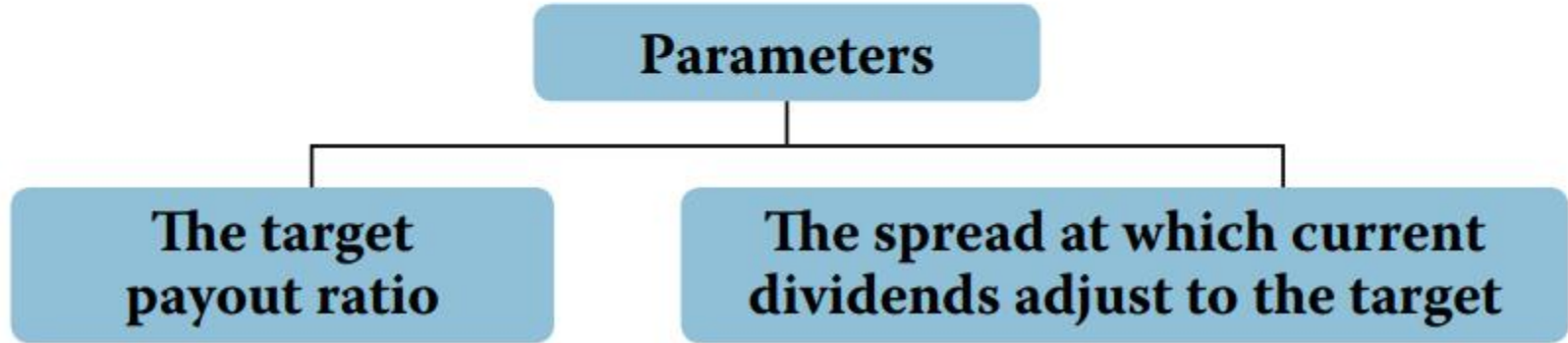
∴ Earnings of the Company = Dividend
Payout ratio

11 20
25%

11 80

LINTER'S MODEL

Under Linter's model, the current year's dividend is dependent on current year's earnings and last year's dividend.



DETERMINATION OF CURRENT YEAR'S DIVIDEND UNDER LINTER'S MODEL

$$D_1 = D_0 + [(EPS \times \text{Target payout}) - D_0] \times Af$$

Where,

D_1 = Dividend in year 1

D_0 = Dividend in year 0 (last year dividend)

EPS = Earnings per share

Af = Adjustment factor or Speed of adjustment

ILLUSTRATION 15

Given the last year's dividend is ₹ 9.80, speed of adjustment of 45%, target payout ratio is 60% and EPS for current year ₹ 20. COMPUTE current year's dividend using Linter's model.

$$D_1 = D_0 + \left[\text{EPS} \times \frac{\text{Payout}}{\text{ratio}} - D_0 \right] \times AF$$

$$= 9.80 + [2.0 \times 60\% - 9.80] \times 45\%$$

$$= 9.80 + [12 - 9.80] \times 45\%$$

$$= 9.80 + 2.2 \times 45\%$$

$$= 9.80 + 0.99$$

$$= \underline{\underline{10.79}}$$

SHARE BUYBACK

Share buyback, in simple terms, means buying/repurchasing own shares by the company resulting into decrease in share capital of the company. Thus, the shares bought back are cancelled leading reduction in outstanding number of shares.

Share buyback is also a form of shareholders' dividend. As the number of circulating shares in the market fall, amount of dividend per share in the future increases.

There are two main types of buyback that can be performed by the companies. One is through an open market, and another is through tender offer. While company intending to buyback through open market, need to go through secondary market. However, in case of tender offer, company offers a fixed price where all the shareholders can participate or sell their shares.

ILLUSTRATION 16

Following information is given pertaining to DG Ltd,

No of shares outstanding	1 lakh shares
Earnings Per share	25 per share
P/E Ratio	20
Book Value per share	400 per share

If company decides to repurchase 25,000 shares, at the prevailing market price, what is the resulting book value per share after repurchasing.

$$\begin{aligned}\text{Total Book Value of the Company} &= 100000 \text{ shares} \\ &\quad \times 400 \\ &= 40000000\end{aligned}$$

$$\begin{aligned}\text{Market Price share shares} &= \text{EPS} \times \text{P/E ratio} \\ &= 25 \times 20 \\ &= 500\end{aligned}$$

$$\begin{aligned}\text{Amount Paid for repurchase of} &= 25000 \text{ shares} \\ 25000 \text{ shares} &\quad \times 500 \\ &= 12500000\end{aligned}$$

Total Book Value after repurchase of shares

$$= \text{Total Book Value Before repurchase} - \text{Amt Paid for repurchase}$$

$$= 40000000 - 12500000$$

$$= 27500000$$

$$\text{Book Value per share after repurchase} = \frac{\text{Total Book Value after repurchase}}{\text{No. of shares after repurchase}}$$

$$\begin{array}{r}
 1' \quad 27500000 \\
 \hline
 \quad 75000 \\
 \\
 1'' \quad \underline{\underline{367}}
 \end{array}$$

ILLUSTRATION 17

Mr ~~H~~^A is currently holding 1,00,000 shares of HM Ltd, and currently the share of HM Ltd is trading on Bombay Stock Exchange at ₹50 per share. Mr A have a policy to re-invest the amount of any dividend received into the shares back again of HM Ltd. If HM Ltd has declared a dividend of 10 per share, please determine the no of shares that Mr A would hold after he re-invests dividend in shares of HM Ltd.

Cum Dividend Price - 50

Ex - Dividend Price - 50 - 10
= 40

Dividend received on shares = 100000 shares
x 10
= 1000000

No. of shares that can be bought up from Dividend income = $\frac{\text{funds available}}{\text{Ex - Dividend Price}}$

$$\begin{array}{r} 1000000 \\ \hline 40 \end{array}$$

25000 shares

∴ Total holding after reinvestment of dividend = 100000 shares + 25000 shares

125000 shares

ILLUSTRATION 18

The following information is supplied to you:

	₹
Total Earnings	2,00,000
No. of equity shares (of ₹ 100 each)	20,000
Dividend paid	1,50,000
Price/ Earnings ratio	12.5

Applying Walter's Model:

- (i) ANALYSE whether the company is following an optimal dividend policy.
- (ii) COMPUTE P/E ratio at which the dividend policy will have no effect on the value of the share.
- (iii) Will your decision change, if the P/E ratio is 8 instead of 12.5? ANALYSE.

(i)

Analysis of Whether The Company is Following Optimal Dividend policy

To Determine whether the Company is following Optimum Dividend Policy we need to compare r & K_e

$$r = \frac{\text{Earnings}}{\text{Capital employed}} = \frac{200000}{20000 \times 100} = \frac{200000}{2000000} = 0.10$$

That is 10%.

$$K_e = 100 / \text{PE ratio}$$

$$= 100 / 12.50$$

$$= 8\%$$

Here, $r > K_e$ Hence the optimum dividend payout ratio shall be zero.

$$\text{D/P ratio of Com Pamp} = \frac{\text{Dividend}}{\text{Earnings}} = \frac{15000}{20000} = 0.75 \text{ that is } 75\%$$

Conclusion - The Optimum Dividend Payout ratio is zero & The Company's D/P ratio is 75%, Hence it can be concluded that Company is not following optimum Dividend Policy.

(ii)

Computation of P/E Ratio at Which Dividend Policy Will Have No Effect on value of Share

Dividend Policy shall not have any Effect on Value of Shares If $r = K_e$

Here $r = 10\%$

To get $K_e = 10\%$ P/E Ratio shall be as follows

$$P/E \text{ ratio} = 100 / K_e$$

$$= 100 / 10 = 10 \text{ times}$$

Thus at a P/E ratio of 10 times, The
Dividend Policy will not have any
Effect on market value of share.

(iii)

Analysis of Whether The Company is Following Optimal Dividend policy If P/E Ratio is 8 instead of 12.50

If P/E ratio is 8 then K_e should be

$$\text{P/E ratio} = 100 / K_e$$

$$= 100 / 8$$

$$= 12.50\%$$

Now $r (10\%) < K_e (12.50\%)$, The
Optimum dividend payout ratio
shall be 100%.

$$\begin{aligned}\text{D/P ratio of company} &= \frac{\text{Dividend}}{\text{Earnings}} \\ &= \frac{150000}{200000} \\ &= 75\%\end{aligned}$$

Conclusion:- Still the company is not following optimum dividend policy as D/P ratio is 75% whereas optimum D/P ratio should be 100%.

ILLUSTRATION 19 (PYP NOV 2019) 5 MARKS

Following figures and information were extracted from the company A Ltd.

<i>Earnings of the company</i>	<i>₹ 10,00,000</i>
<i>Dividend paid</i>	<i>₹ 6,00,000</i>
<i>No. of shares outstanding</i>	<i>2,00,000</i>
<i>Price Earnings Ratio</i>	<i>10</i>
<i>Rate of return on investment</i>	<i>20%</i>

Handwritten notes:
 $EPS = ₹ 5$
 $KDPS = 3$
 $KE = 10\%$

You are required to calculate:

- (i) Current Market price of the share*
- (ii) Capitalisation rate of its risk class*
- (iii) What should be the optimum pay-out ratio?*
- (iv) What should be the market price per share at optimal pay-out ratio? (use Walter's Model)*



c1) Computation of current market Price

$$P/E \text{ ratio} = \text{MPS} / \text{EPS}$$

$$10 = \text{MPS} / 5$$

$$\therefore \text{MPS} = 50$$

Alternatively

$$P_0 = \frac{DPS + \frac{r}{k_e} (\hat{EPS} - DPS)}{k_e}$$

$$= \frac{3 + \frac{0.20}{100 / \text{PE ratio}} (5 - 3)}{100 / \text{PE ratio}}$$

$$= \frac{3 + \frac{0.20}{100 / 10} (5 - 3)}{100 / 10}$$

$$\begin{array}{r}
 77 \quad 3 + \frac{0.20}{0.10} \quad (5-3) \\
 \hline
 0.10
 \end{array}$$

$$\begin{array}{r}
 77 \quad 3 + 4 \\
 \hline
 0.10
 \end{array}$$

$$\begin{array}{r}
 77 \quad 70
 \end{array}$$

(ii) Capitalis rate of 15 risk class.

Capitalisation rate $\approx K_e$

$$\therefore \text{P/E ratio} \approx 100 / K_e$$

$$10 \approx 100 / K_e$$

$$\therefore K_e \approx 100 / 10$$

$$\approx \underline{\underline{10\%}}$$

(iii) Determination of Optimum Payout ratio

As $r (20\%) > K_e (10\%)$ The Optimum Dividend Payout ratio shall be Zero

12) Computation of market price at optimum payout ratio (Walter's model)

$$P_0 = \text{DPS} + \frac{r}{k_e} (\hat{\text{EPS}} - \text{DPS})$$

$$= 0 + \frac{0.20}{0.10} (5 - 0)$$

$$= 100$$

ILLUSTRATION 20

Following information are given for a company:

Earnings per share	₹ 10
P/E Ratio	12.5
Rate of return on investment	12%
Market price per share as per Walter's model	₹ 130

You are required to calculate:

- (i) Dividend payout ratio.
- (ii) Market price of share at optimum dividend payout ratio.
- (iii) P/E ratio, at which the dividend policy will have no effect on the price of share
- (iv) Market price of share at this P/E ratio.
- (v) Market price of share using dividend growth model.

c.) Dividend Payout Ratio

$$P = \frac{DPS + \frac{r}{K_e} (EPS - DPS)}{K_e}$$

$$P/E \text{ ratio} = \frac{100}{K_e}$$

$$12.5 = \frac{100}{K_e}$$

$$\therefore K_e = 8\%$$

$$130 = x + \frac{0.12}{0.08} (10 - x)$$

$$0.08$$

$$10.40 = x + 1.5 (10 - x)$$

$$10.40 = x + 15 - 1.5x$$

$$4.6 = 0.5x$$

$$\therefore x = 9.2$$

$$\therefore \text{DP ratio} = \frac{\text{EPS}}{\text{EPS}} \times 100 = \frac{9.2}{10} \times 100 = 92\%$$

Cii) Market Price at Optimum Dividend Payout Ratio

As r (12%) $>$ K_e (8%) Optimum Dividend Payout ratio shall be zero

$$P = \text{DPS} + \frac{r}{K_e} (\text{EPS} - \text{DPS})$$

$$= 0 + \frac{0.12}{0.68} (10 - 0)$$

$$0.08$$

$$\begin{array}{r} 11 \\ \hline 0.08 \end{array}$$

$$= 187.50$$

(iii) PE Ratio at which Dividend Policy will have no impact on Share Price.

If $r = K_e$, Dividend Policy won't have impact on Share Price, Consider $K_e = 12\%$,

$$\therefore \text{PE Ratio} = \frac{100}{12} \\ = 8.33 \text{ times}$$

12) market price at P/E ratio of 8.33 times

$$P_0 = \text{DPS} + \frac{\sigma}{K_c} (\hat{E}PS - \text{DPS})$$

$$= 9.2 + \frac{0.12^{K_c}}{0.12} (10 - 9.2)$$

$$= 83.33$$

✓ Price using Dividend growth model.

$$P = \frac{DPS}{k_e - g}$$

$$= \frac{9.20}{0.08 - (0.08 \times 0.12)}$$

$$= \frac{9.20}{0.08 - 0.0096} = \frac{9.20}{0.0704} = 130.68$$



thank you!