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SUMMARY CHART

Sample Notes

Curated By:-

CA, CPA Vinod Kumar Agarwal

(AIR 2 - CA Foundation, AIR 4 - CA Inter, AIR 24 - CA Final)

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ABOUT

CA VINOD KUMAR AGARWAL

(AIR-2nd, 4th & 24th IN FOUNDATION, INTER & FINAL RESPECTIVELY)

SUMMARY

Founder Member of A.S. Foundation, India's Leading Academy for C.A. Course, CA Vinod Kumar Agarwal is a fellow member of ICAI and a past member of the Board of Studies, ICAI. With a teaching experience of twenty years, he has guided more than 1,00,000 students and is ranked as one of the best teachers for Accounts and Financial Management at Intermediate level and Financial Reporting and SFM at Final Level.

He has authored books on Accounts, Advanced Auditing for CA Final, Auditing for Intermediate, Accounting Standards, Ind AS, Costing and Financial Management, and his books have sold more than 2,00,000 copies.

PUBLICATIONS AND ACHIEVEMENTS

- A merit holder in all the three levels of exams conducted by ICAI (2nd rank, 4th rank, and 24th rank in CA Foundation, CA Intermediate an CA Final respectively).
- Scored 99 marks in Accountancy in CA Foundation.
- Authored books on Accounts, Advanced Auditing for CA Final, Auditing for Intermediate, Accounting Standards, Ind AS, Costing and Financial Management.
- Complied a book "No Truth, Only Interpretations", a book on motivation, inspiration and guidance.
- Compiled a book, "Mind Candy", a book on motivation.
- Compiled a book, "Sweet Voice", a book on inspirational quotes.
- Working experience with India's top firms Firms like M/s. S.B. Billimoria and A.F. Ferguson (both member firm of Deloitte).
- Published article in the Students Newsletter of ICAI on "Valuation of Equity Shares" and "Stock Market Index".
- Presented a paper on "Corporate Governance and Role of Auditor" in National Students Conference held in Goa.

EDUCATION

- Passed the Certified Public Accountant (CPA) (USA) exam in 2007.
- Post-graduation from Pune University with First Class.
- Graduation from B.M.C.C, Pune with distinction.
- Passed the Diploma in Business Finance Conducted by ICFAI, Hyderabad.
- Passed the Derivative Module test conducted by National Stock Exchange.
- Also appeared for UPSC exam and cleared Mains twice.

TEACHING EXPERIENCE

- Teaches Accounts, Advanced Accountancy, Financial management and Economics for Finance at CA Intermediate Level and Financial Reporting and Advanced Financial Management (AFM) at CA Final level.
- Pioneer of creating and distributing video tutorials in pen drives/google drive among students.
- Produced All India Toppers (1st Rank) in CPT examination and final examination apart from more than 250 all India merit- holders.
- More than 30000 Facebook subscribers, more than 42000 YouTube subscribers.
- Sold more than 40000 video lectures in pen-drive and google-drive mode.
- In 2019, launched a brand VKNOW, to become a national brand for digital learning.

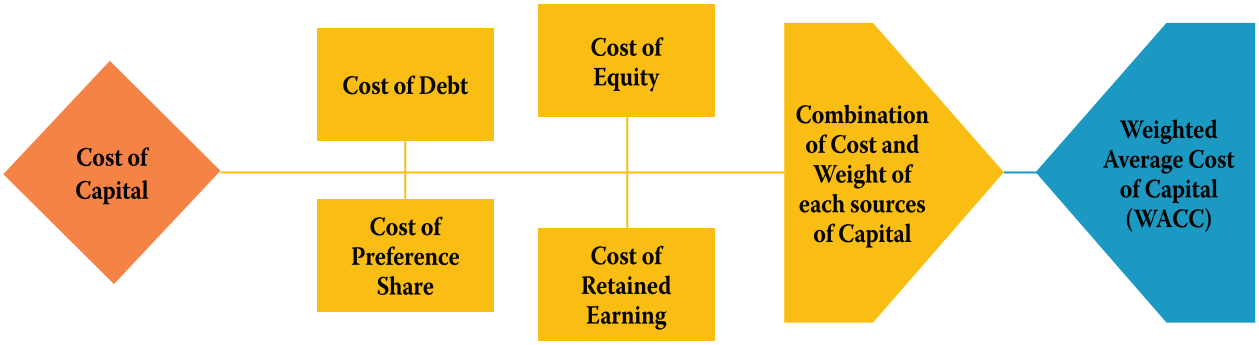
TEACHING APPROACH

- Simple and effective way of teaching through concept building, class-room practice, home-exercise, and power-point presentation.
- A large variety of problems are solved in the class to meet the examination requirements.
- Notes are updated frequently covering amendments and exam problems.

CHAPTER - 4

Cost of Capital

Points of Discussion

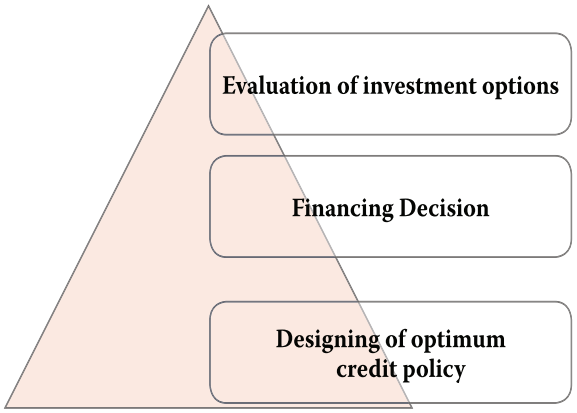


Meaning of Cost of Capital

Cost of Capital

- **Return expected by the providers of capital** (i.e. shareholders, lenders and the debt-holders)

Significance of Cost of Capital



Determination of Cost of Capital

Cost is **not** the amount which the **company plans to pay** or actually pays, **rather** it is the **expectation of stakeholders**

TO CALCULATE COST

Identify various cash flows

Like:
- **Inflow of amount received at the beginning.**
- **Outflow of payment of interest, dividend, redemption amount etc.**
- **Inflow of tax benefit on interest or Outflow of payment of dividend tax.**

THEREAFTER, use trial & error method to arrive at a rate where **present value of outflows** is **equal to present value of inflows** which is basically **IRR.**

Cost of LONG-TERM DEBT (K_d)

Long-term Debt

- Do **not confers ownership** to the providers of finance.
- Debt providers do **not participate in the affairs** of the company.
- (ey **get charge on the profit** before taxes in the form of interest

Cost of long term Debt

- **Cost of Irredeemable Debt**
- **Cost of Redeemable Debt**

Cost of Irredeemable Debentures

$$K_d = \frac{I}{NP}(1-t)$$

Where,

K_d = Cost of debt after tax
I = Annual interest payment
NP = Net proceeds of debentures* (new debentures) or Current market price (existing debentures)
t = Tax rate

*Net proceeds means issue price less issue expenses or floatation cost

Cost of Redeemable Debentures

Using Approximation method

$$^{\#}K_d = \frac{I(1-t)+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}$$

Where,

I = Interest payment
NP = Net proceeds (new) or Current market price (existing)
RV = Redemption value of debentures
t = Tax rate applicable to the company
n = Remaining life of debentures

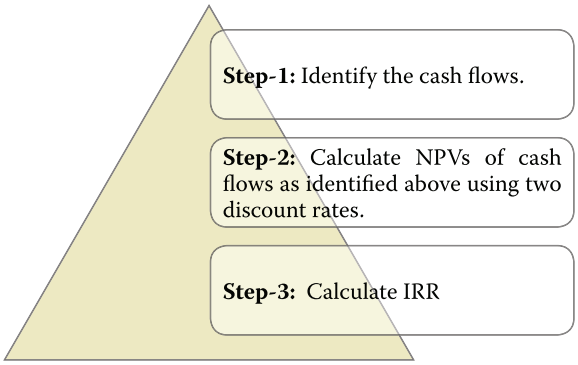
#This formula is used where only interest on debt is tax deductible. Sometime, debts are issued at discount and/ or redeemed at a premium. If such discount on issue and/ or premium on redemption are tax deductible, the following formula can be used:

$$K_d = \frac{I+\frac{(RV-NP)}{n}}{\frac{(RV+NP)}{2}}(1-t)$$

Using Present value method [Yield to maturity (YTM) approach]

YTM- An internal rate of return at which current price of a debt equals to the present value of all cash-flows.

STEPS TO CALCULATE RELEVANT CASH FLOWS



Step-1: Identify the cash flows.

The relevant cash flows are as follows:

Year	Cash flows
0	Net proceeds in case of new issue/ Current market price in case of existing debt (NP or P_0)
1 to n	Interest net of tax [I(1-t)]
n	Redemption value (RV)

Step-2: Calculate NPVs of cash flows as identified above using **two discount rates** (guessing) to get each a positive NPV (lower rate) and a negative NPV (higher rate).

Step-3: Calculate IRR.

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H}(H-L)$$

[Here, H and L stands for higher discount rate and lower discount rate respectively. It is to be noted that **higher the difference between H and L, lower the accuracy of answer.**]

Example: A company issued 10,000, 10% debentures of ₹100 each on 01.04.2021 to be matured on 01.04.2026. The company wants to know the current cost of its existing debt if the market price of the debentures is ₹80, considering 35% tax rate.

Step-1: Identification of relevant cash flows

Year	Cash flows
0	Current market price (P_0) = ₹80
1 to 5	Interest net of tax [I(1-t)] = 10% of ₹100 (1-0.35) = ₹6.5
5	Redemption value (RV) = Face value i.e. ₹100

Step- 2: Calculation of NPVs at two discount rates

Year	Cash flows (₹)	Discount factor @ 10% (L)	Present Value (₹)	Discount factor @ 15% (H)	Present Value (₹)
0	80	1.000	(80.00)	1.000	(80.00)
1 to 5	6.5	3.791	24.64	3.352	21.79
5	100	0.621	62.10	0.497	49.70
NPV			+6.74		-8.51

Step- 3: Calculation of IRR

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H}(H-L) = 10\% + \frac{6.74}{6.74-(-8.51)}(15\%-10\%) = 12.21\%$$

Growth Approach or Gordon's Model

Rate of **dividend growth** remains **constant**. **Earnings, dividends and equity share price** all **grow** at the **same rate**.

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

Where,
D_1 = $[D_0 (1+ g)]$ i.e. next expected dividend
P_0 = Current Market price per share
g = Constant Growth Rate of Dividend

In case of newly issued equity shares where **floatation cost is incurred,**

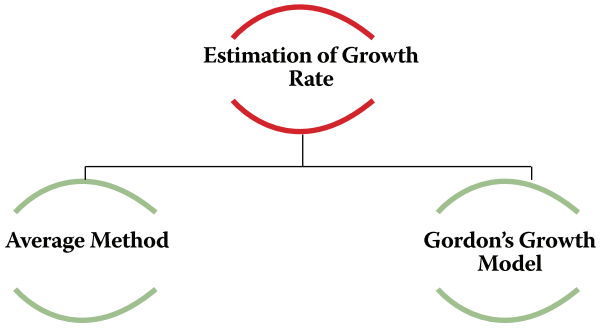
$$K_e = \frac{D_1}{P_0 - F} + g$$

Where,
F = Flotation cost per share

Example: A company has paid dividend of₹1 per share (of face value of ₹10 each) last year and it is expected to grow @ 10% every year. The market price of share is ₹55.

$$K_e = \frac{D_1}{P_0} + g = \frac{₹1(1+0.1)}{₹55} + 0.1 = 0.12 \text{ or } 12\%$$

Estimation of Growth Rate



(i) Average Method

Current Dividend $(D_0) = D_n(1+g)^n$
or
Growth rate $= \sqrt[n]{\frac{D_0}{D_n}} - 1$

Where,
D_0 = Current dividend,
D_n = Dividend in n years ago

Other ways:

Step-I
- Divide D_0 by D_n, find out the result, then refer the FVIF table.

Step-II
- Find out the result found at Step-I in corresponding year's row.

Step-III
- See the interest rate for the corresponding column. (is is the growth rate.

Example: The current dividend (D_0) is ₹16.10 and the dividend 5 year ago was ₹10. The growth rate in the dividend can found out as follows:
Step-I: Divide D_0 by D_n i.e. ₹16.10 ÷ ₹10 = 1.61
Step-II: Find out the result found at Step-I i.e. 1.61 in corresponding year's row i.e. 5th year.
Step-III: See the interest rate for the corresponding column which is 10%. Therefore, growth rate (g) is 10%.

(ii) Gordon's Growth Model

This model attempts to **derive** a **future growth rate**.

Growth (g) = b × r

Where,
b = earnings retention rate*
r = rate of return on fund invested
*Proportion of earnings available to equity shareholders which is not distributed as dividend.

Realised Yield Approach

Average rate of **return realised** in the **past** few years historically **regarded** as **'expected return'** in future.
Computes **cost** of **equity based on** the **past records** of dividends actually realised.

Example: Mr. X had purchased a share of ABC Limited for ₹1,000 and received dividend for five years @ 10%. At the end of the fifth year, he sold the share for ₹1,128. The cost of equity as per realised yield approach would be as follows:
It would be the discount rate which equates the present value of the dividends received in the past five years plus the present value of sale price of ₹1,128 to the purchase price of ₹1,000.
The discount rate which equalises these two is 12% (approx..)

Year	Dividend (₹)	Sale Proceeds (₹)	Discount Factor @ 12%	Present Value (₹)
1	100	-	0.893	89.3
2	100	-	0.797	79.7
3	100	-	0.712	71.2
4	100	-	0.636	63.6
5	100	-	0.567	56.7
6	Beginning	1,128	0.567	639.576
				1,000.076

Capital Asset Pricing Model (CAPM) Approach

Diversifiable or Unsystematic risk (related with the company's performance) can be eliminated by an investor through diversification.

However, **non-diversifiable or systematic risk (macro-economic or market specific risk)** is the risk which **cannot be eliminated**; thus, a business should be concerned as per CAPM method, solely with non-diversifiable risk.

Amortisation of Bond

A bond **may** be **amortised every year** i.e., principal is repaid every year rather than at maturity.

In such a situation, the **principal** will **go down** with annual payments and interest will be computed on the outstanding amount.

Cash flows will be **uneven**.

$$\text{Value of Bond } V_B = \frac{C_1}{(1+K_d)^1} + \frac{C_2}{(1+K_d)^2} + \ldots\ldots + \frac{C_n}{(1+K_d)^n}$$

$$V_B = \sum_{t=1}^{n} \frac{C_t}{(1+K_d)^t}$$

Cost of Convertible Debentures

Option to either get the debentures redeemed into **cash or** get specified numbers of company's **shares**.

While determining redemption value, it is assumed that all the debenture holders will **choose the option which has the higher value i.e. beneficial to the holder.**

Cost of PREFERENCE SHARE CAPITAL (K_p)

Preference Share Capital

- Paid **dividend** at a **specified rate** on face value.
- Dividend treated as an **appropriation of** after-tax **profit**.
- Does **not reduce** the **tax** liability of the company.

Cost of Preference Share Capital

- **Cost of Irredeemable Preference Share Capital**
- **Cost of Redeemable Preference Share Capital**

Cost of Irredeemable Preference Shares

$$K_p = \frac{PD}{P_0}$$

Where,

PD = Annual preference dividend

P_0 = Net proceeds[$] from issue of preference shares

[$]Net proceeds means issue price less issue expenses or floatation cost

Cost of Redeemable Preference Shares

$$K_p = \frac{PD + \frac{(RV - NP)}{n}}{\frac{(RV + NP)}{2}}$$

Where,

PD = Annual preference dividend

RV = Redemption value of preference shares

NP = Net proceeds from issue of preference shares

n = Remaining life of preference shares

Cost of EQUITY SHARE CAPITAL (K_e)

Equity Share Capital

- It is the **expectation of equity** shareholders.
- **Value is performance** divided by expectations.
- **Performance means amount paid by company to investors**, like interest, dividend, redemption price etc. which is **uncertain in case of equity.**

Methods to compute Cost of Equity Share Capital

- **Dividend Price Approach**
- **Earning Price Approach**
- **Growth Approach**
- **Realized Yield Approach**
- **Capital Asset Pricing Model (CAPM)**

Dividend Price Approach

This approach **assumes** that the **dividend** per share is expected to remain **constant** forever.

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

Where,

D = Expected dividend (also written as D_1)

P_0 = Market price of equity (ex- dividend)

Earnings Price Approach

This approach **co-relate the earnings** of the company **with** the **market price** of its share.

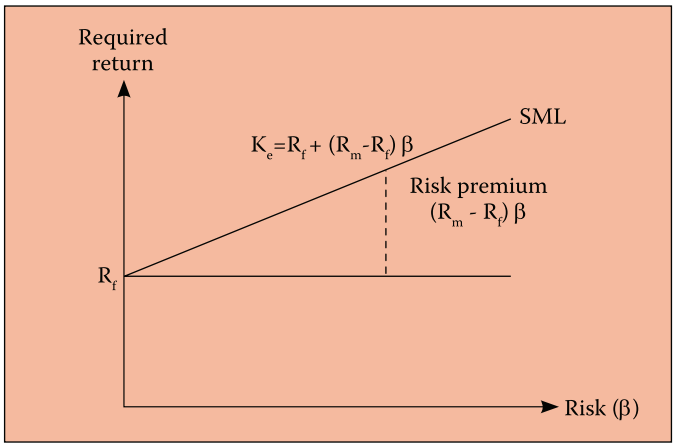
$$K_e = \frac{E}{P}$$

Where,

E = Current earnings per share

P = Market price per share

Cost of Equity under CAPM = Risk free rate + Risk premium



$$K_e = R_f + ß\,(R_m - R_f)$$

Where,

K_e	=	Cost of equity capital
R_f	=	Risk free rate of return
ß	=	Beta coefficient (represents systematic risk)
R_m	=	Rate of return on market portfolio
$(R_m - R_f)$	=	Market risk premium

Risk Return relationship of various securities

Example: The risk-free rate of return equals 10%. The company's beta equals 1.75 and the return on the market portfolio equals to 15%. Thus, the cost of equity capital of the company would be:

$K_e = R_f + ß\,(R_m - R_f)$

$K_e = 0.10 + 1.75\,(0.15 - 0.10) = 0.1875$ or 18.75%

Cost of Retained Earnings (Kr)

Retained Earnings

- It is the **opportunity cost of dividends foregone by shareholders.**

Formulas used for calculation of cost of retained earnings are same as formulas used for calculation of cost of equity.

Dividend Price method: $K_r = \frac{D}{P}$

Earning Price method: $K_r = \frac{EPS}{P}$

Growth method: $K_r = \frac{D_1}{P_0} + g$

For K_e : P = net proceeds realized i.e. issue price less floatation cost. But for K_r : P = current market price. However, sometimes issue price may also be used ignoring Floatation cost.

Weighted Average Cost Of Capital (WACC)

WACC

- A company makes a mix of various sources of finance.
- **Cost** of total capital will be equal to **WACC** of **individual sources** of finance.

Steps to calculate WACC:

Step 1
- **Calculate** the **total capital** from all the sources of capital.
- Eg. Long-term debt capital + Pref. Share Capital + Equity Share Capital + Retained Earnings

Step 2
- **Calculate** the **proportion** (or %) of each source of capital to the total capital.
- [Equity Share Capital (for example)/Total Capital (as calculated in Step1 above)]

Step 3
- **Multiply** the **proportion** as calculated in Step 2 above **with** the respective **cost of capital**.
- (K_e × Proportion (%) of equity share capital (for example) calculated in Step 2 above)

Step 4
- **Aggregate** the **cost of capital** as calculated in Step 3 above. **'is is the WACC.**
- ($K_e + K_d + K_p + K_s$ as calculated in Step 3 above)

Choice of Weights

Book Value (BV)

Operationally **easy and convenient.**

Reserves such as share premium and retained profits are **included in the BV of equity.**

Market Value (MV)

More correct and **represent** a firm's **capital structure** .

Preferable to use **MV** weights for the **equity** .

Reserves such as share premium and retained profits are **ignored** as they are in effect incorporated into the value of equity.

No separate MV for retained earnings.

Example: The capital structure of the company is as under:

	(₹)
10% Debentures with 10 years maturity (₹100 per debenture)	5,00,000
5% Preference shares with 10 years maturity (₹100 per share)	5,00,000
Equity shares (₹10 per share)	10,00,000
	20,00,000

The market prices of these securities are:

Debentures ₹105 per debenture

Preference shares ₹110 per preference share

Equity shares ₹24 per equity share

After tax Cost of Capital: Equity = 10%, Debt = 6.89% and Preference shares = 4.08%

'e WACC applying BV and MV would be as follows:

(a) Calculation of WACC using BV weights

Source of capital	Book Value	Weights	After tax cost of capital	WACC (K_o)
	(₹)	(a)	(b)	(c) = (a)×(b)
10% Debentures	5,00,000	0.25	0.0689	0.01723
5% Preference shares	5,00,000	0.25	0.0408	0.0102
Equity shares	10,00,000	0.50	0.10	0.05000
	20,00,000	**1.00**		**0.07743**

WACC (K_o) = 0.07743 or 7.74%

(b) Calculation of WACC using MV weights

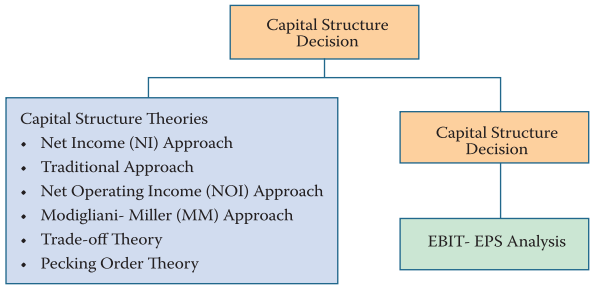
Source of capital	Market Value	Weights	After tax cost of capital	WACC (Ko)
	(₹)	(a)	(b)	(c) = (a)×(b)
10% Debentures (₹105× 5,000)	5,25,000	0.151	0.0689	0.0104
5% Preference shares (₹110× 5,000)	5,50,000	0.158	0.0408	0.0064
Equity shares (₹24× 1,00,000)	24,00,000	0.691	0.10	0.0691
	34,75,000	**1.000**		**0.0859**

WACC (K_o) = 0.0859 or 8.59%

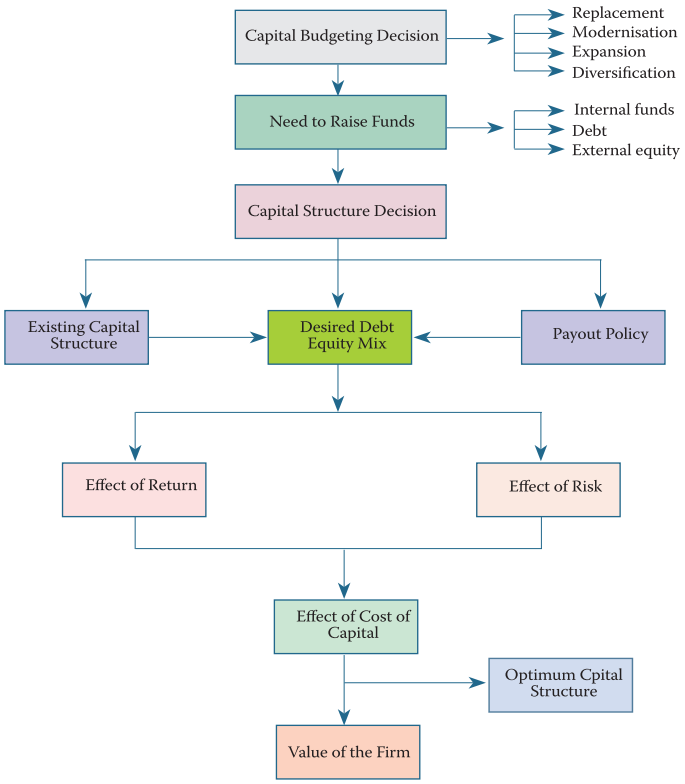
CHAPTER - 5

Financing Decisions Capital Structure

Chapter Overview

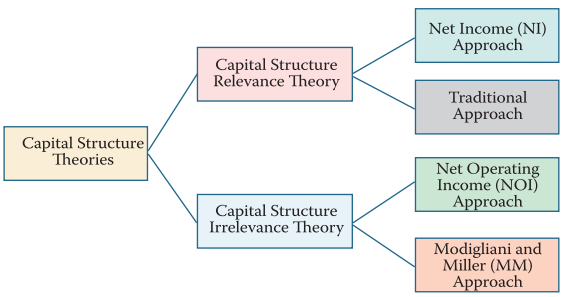


Capital Structure decision refers to deciding the forms of financing (which sources to be tapped); their actual requirements (amount to be funded) and their relative proportions (mix) in total capitalisation.



Capital Structure Theories

The following approaches explain the relationship between cost of capital, capital structure and value of the firm



Net Income (NI) Approach

According to this approach, capital structure decision is relevant to the value of the firm. An increase in financial leverage will lead to decline in the weighted average cost of capital (WACC), while the value of the firm as well as market price of ordinary share will increase. Conversely, a decrease in the leverage will cause an increase in the overall cost of capital and a consequent decline in the value as well as market price of equity shares

The value of the firm on the basis of Net Income Approach can be ascertained as follows:

V = Market Value of Equity + Market Value of Debt

$$\text{Overall cost of capital} = \frac{\text{EBIT}}{\text{Value of the Form}}$$

Traditional Approach

This approach favours that as a result of financial leverage up to some point, cost of capital comes down and value of firm increases. However, beyond that point, reverse trends emerge. The principle implication of this approach is that the cost of capital is dependent on the capital structure and there is an optimal capital structure which minimises cost of capital.

Net Operating Income Approach (NOI)

Any change in the leverage will not lead to any change in the total value of the firm and the market price of shares, as the overall cost of capital is independent of the degree of leverage. As a result, the division between debt and equity is irrelevant.

As per this approach, an increase in the use of debt which is apparently cheaper is offset by an increase in the equity capitalisation rate. This happens because equity investors seek higher compensation as they are opposed to greater risk due to the existence of fixed return securities in the capital structure.

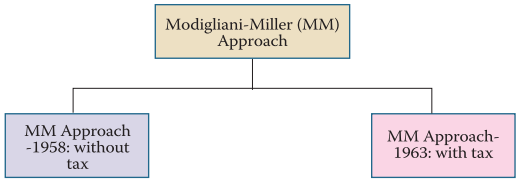
$$V = \frac{NOI}{K_O}$$

Where,

V = Value of the firm
NOI = Net operating Income
K_o = Cost of Capital

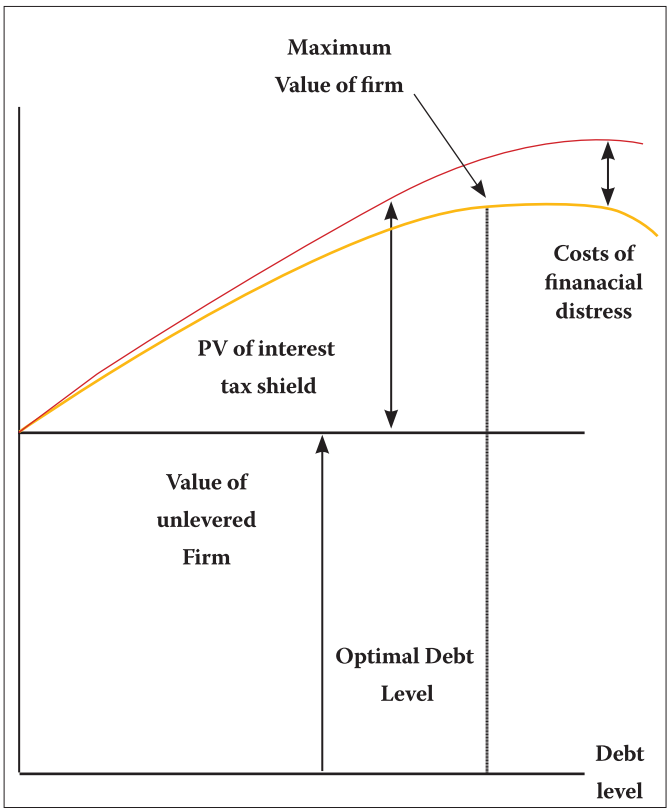
Modigliani-Miller Approach (MM)

The NOI approach is definitional or conceptual and lacks behavioral significance. It does not provide operational justification for irrelevance of capital structure. However, Modigliani-Miller approach provides behavioral justification for constant overall cost of capital and therefore, total value of the firm. This approach indicates that the capital structure is irrelevant because of the arbitrage process which will correct any imbalance i.e. expectations will change and a stage will be reached where arbitrage is not possible.



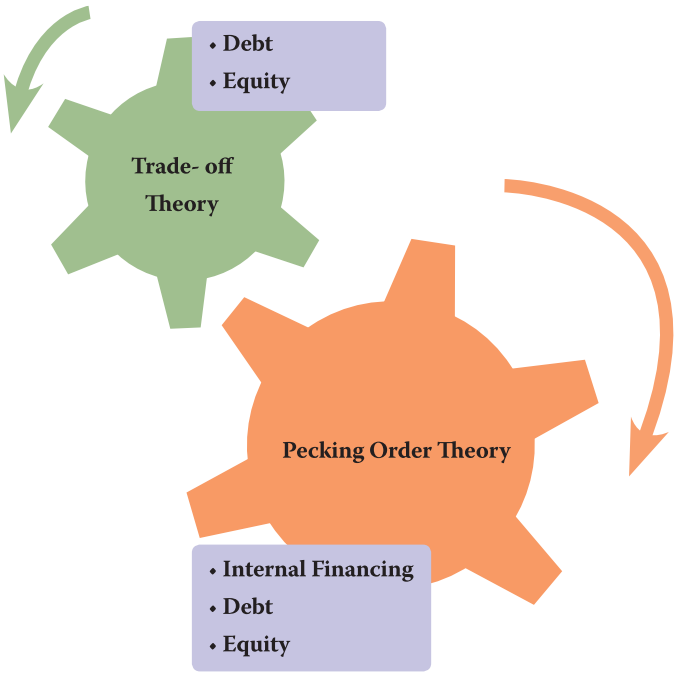
The Trade-off Theory:

The trade-off theory of capital structure refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the costs and benefits.



Pecking order theory

This theory is based on Asymmetric information, which refers to a situation in which different parties have different information.



EBIT-EPS Analysis

The basic objective of financial management is to design an appropriate capital structure which can provide the highest earnings per share (EPS) over the company's expected range of earnings before interest and taxes (EBIT).

EPS measures a company's performance for the shareholders. The level of EBIT varies from year to year and represents the success of a company's operations.

However, The EPS criterion ignores the risk dimension as well as it is more of a performance measure.

$$\frac{(EBIT-I_1)(1-t)}{E_1} = \frac{(EBIT-I_2)(1-t)}{E_2}$$

Where,

EBIT	=	Indifference point
E_1	=	Number of equity shares in Alternative 1
E_2	=	Number of equity shares in Alternative 2
I_1	=	Interest charges in Alternative 1
1_2	=	Interest charges in Alternative 2
T	=	Tax-rate
Alternative 1	=	All equity finance
Alternative 2	=	Debt-equity finance

Over- Capitalisation

- It is a situation where a firm has more capital than it needs or in other words assets are worth less than its issued share capital, and earnings are insufficient to pay dividend and interest.

Under Capitalisation

- It is just reverse of over-capitalisation. It is a state, when its actual capitalisation is lower than its proper capitalisation as warranted by its earning capacity.