

Capital Structure



CAPITAL

2



Financial

manager
(FM)

1



PROJECT

- FM will arrange Rs.10,00,000 for Investment.

- FM wants to invest Rs.10,00,000 in project.

Particulars	1	2	3
Equity	10L	5L	5L
Preference		5L	
Debt			5L
	10L	10L	10L

Investment Decision

- Which project to invest
- To maximize return

Capital Structure

- In which proportion (structure / mix / ratio) Rs.10,00,000 should be arranged.
- To maximise EPS & MPB

Sales

- VC

Contribution

- FC

EBIT

(EBIT will remain same in all options)

Capital Structure

1. Optimal Capital Structure
2. Financial BEP
3. Indifference Point
4. Value of Firm
5. Arbitrage Process (MM approach)

1. Optimal Capital Structure

* Format:y. Income Statement:Options

<u>Particulars</u>	<u>1</u>	<u>2</u>	<u>3</u>
EBIT			
- Interest			
EBT			
- Tax			
EAT			
- Preference Dividend			
NP for ESH			
÷ NO of ES			
EPS (2nd Preference)			
x PE Ratio			
MPS (1st Preference)			

Decision: Option should be selected as EPS/MPS is higher under this option.

(WN-1): Capital structure: (Rs.)

<u>Particulars</u>	<u>1</u>	<u>2</u>	<u>3</u>
ESC			
% PSC			
% Debt			

NEW:

- Equity shares
($ESC \div \text{Issue price}$)
- Preference Dividend
($PSC \times \%$)
- Interest.
($\text{Debt} \times \%$)

2. Financial Break Even Point

1. meaning: EBIT at which EPS will be NIL.

2. Formula:
$$\text{Financial BEP} = \frac{\text{Interest} + \frac{PD}{1-t}}{1-t}$$

3. Indifference Point

1. meaning: EBIT at which EPS under 2 options is same

2. Formula:
$$\frac{EPS(\text{Option 1})}{\text{No of Equity shares}} = \frac{EPS(\text{Option 2})}{\text{No of Equity shares}}$$

$$\frac{(EBIT - \text{Interest})(1-t) - PD}{\text{No of Equity shares}} = \frac{(EBIT - \text{Interest})(1-t) - PD}{\text{No of Equity shares}}$$

EBIT will be assumed as x

Indifference Point (IP)

Below IP

option with lower
Interest & PD
is better

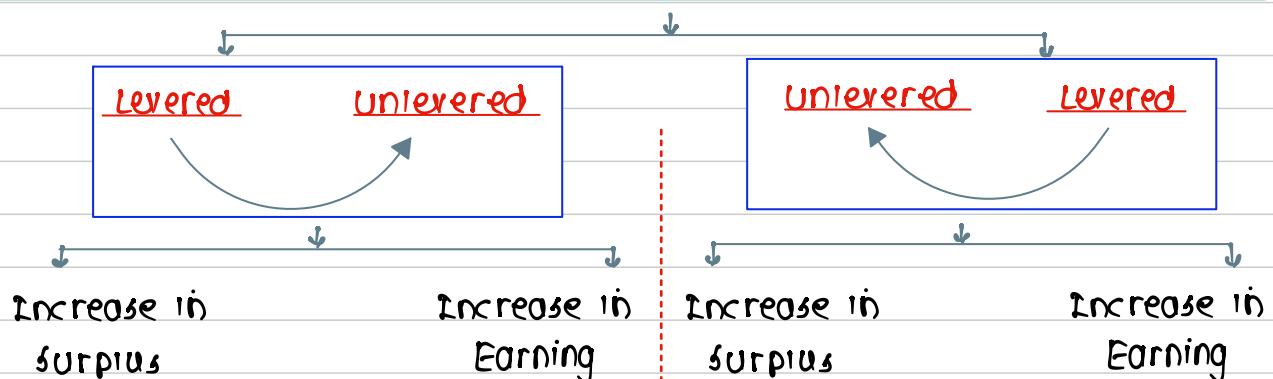
Above IP

option with higher
Interest & PD
is better

4. Value of Firm

Particulars		Amt
EBIT	(Value of Firm $\times K_0$)	✓
- Interest	(Value of Debt $\times K_d$)	✓
EAE	(Value of Equity $\times K_e$)	✓

5. Arbitrage Process (MM Approach)



Arbitrage (MM approach)

From Levered firm to unlevered firm

1. Value of Firm:

Particulars	L	U
EBIT	450	450
- Interest $(2000 \times 10.5\%)$ (210)		-
EAE	240	450
÷ Cost of Equity (k_e)	÷ 24%	÷ 18%
Value of Equity	1000	2500
Value of Debt	2000	-
Value of Firm	3000	2500
% of Holding (assumed)	10%	

Partial Investment
Increase in Surplus

Full Investment
Increase in Earning

2. Sale & Buy (with loan taken)

a) Sell shares of Levered Co. ($k_e = 24\%$)	100
$(1000 \times 10\%)$	
b) Loan taken ($k_d = 10.5\%$)	200
$(2000 \times 10\%)$	
CASH Available	300
c) Buy shares of Unlevered Co. ($k_d = 18\%$)	250
$(2500 \times 10\%)$	
Surplus cash	50

2. Sale & Buy (with loan taken)

a) Sale shares of Levered Co. ($k_e = 24\%$)	100
$(160,000 \times 15\%)$	
b) Loan taken ($k_d = 10.5\%$)	200
$(100,000 \times 15\%)$	
CASH Available	300
c) Buy shares of Unlevered Co. ($k_d = 18\%$)	300
Surplus cash	-

3. Increase in Earning:

a) Return on levered company	(24)
$(100 \times 24\%)$	
b) Interest on loan taken	(21)
$(200 \times 10.5\%)$	
c) Return on unlevered company	45
$(250 \times 18\%)$	
	-

3. Increase in Earning:

a) Return on levered company	(24)
$(100 \times 24\%)$	
b) Interest on loan taken	(21)
$(200 \times 10.5\%)$	
c) Return on unlevered company	54
$(300 \times 18\%)$	
	9

From Unlevered firm to Levered firm

1. Value of Firm:

Particulars	L	U
EBIT	450	450
- Interest $(2000 \times 10.5\%)$ (210)		-
EAE	240	450
÷ Cost of Equity	÷ 24%	÷ 12.5%
Value of Equity	1000	3600
Value of Debt	2000	-
Value of Firm	3000	3600
% of Holding (assumed)		10%

Partial Investment
Increase in Surplus

Full Investment
Increase in Earning

2. Sale & Buy (with loan taken)

a) Sell shares of Unlevered Co. ($k_e = 12.5\%$)	360
$(3600 \times 10\%)$	
b) Loan Given ($k_d = 10.5\%$)	(200)
$(2000 \times 10\%)$	
CASH Available	160
c) Buy shares of Levered Co. ($k_d = 24\%$)	(100)
$(1000 \times 10\%)$	
Surplus cash	60

2. Sale & Buy (with loan taken)

a) Sell shares of Unlevered Co. ($k_e = 12.5\%$)	360
$(3600 \times 10\%)$	
b) Loan Given ($k_d = 10.5\%$)	(240)
$(360 \times 2000/3000)$	
CASH Available	120
c) Buy shares of Levered Co. ($k_d = 24\%$)	120
$(360 \times 1000/3000)$	
Surplus cash	-

3. Increase in Earning:

a) Return on unlevered company	(45)
$(360 \times 12.5\%)$	
b) Interest on loan given	21
$(200 \times 10.5\%)$	
c) Return on levered company	24
$(100 \times 24\%)$	
	-

3. Increase in Earning:

a) Return on unlevered company	(45)
$(360 \times 12.5\%)$	
b) Interest on loan given	25.2
$(240 \times 10.5\%)$	
c) Return on levered company	28.8
$(120 \times 24\%)$	
	-

Arbitrage (MM approach)

Arbitrage (MM approach)

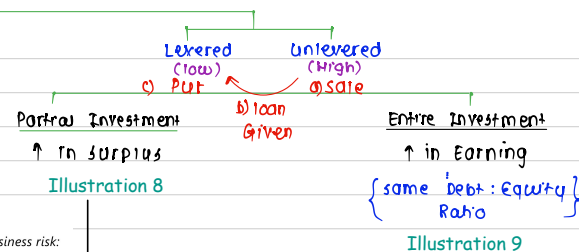
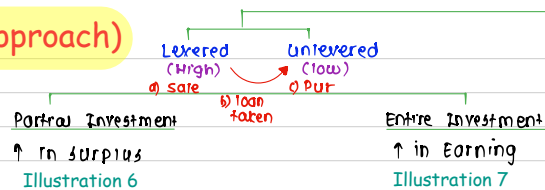


ILLUSTRATION 6

(When value of levered firm is more than the value of unlevered firm)

There are two companies N Ltd. and M Ltd., having same earnings before interest and taxes (EBIT) of ₹ 20,000. M Ltd. is a levered company having a debt of ₹ 1,00,000 @ 7% rate of interest. The cost of equity of N Ltd. is 10% and of M Ltd. is 11.50%.

COMPUTE how arbitrage process will be carried on?

ILLUSTRATION 7

Following data is available in respect of two companies having same business risk:

Capital employed = ₹ 2,00,000, EBIT = ₹ 30,000 and $K_e = 12.5\%$

Sources	Levered Company (₹)	Unlevered Company (₹)
Debt (@10%)	1,00,000	Nil
Equity	1,00,000	2,00,000

An investor is holding 15% shares in levered company. CALCULATE the increase in annual earnings of investor if he switches his holding from Levered to Unlevered company.

ILLUSTRATION 8

(When value of unlevered firm is more than the value of levered firm.)

There are two companies U Ltd. and L Ltd., having same NOI of ₹ 20,000 except that L Ltd. is a levered company having a debt of ₹ 1,00,000 @ 7% and cost of equity of U Ltd. & L Ltd. are 10% and 18% respectively.

COMPUTE how arbitrage process will work.

ILLUSTRATION 9

ILLUSTRATION 9

Following data is available in respect of two companies having same business risk:

Capital employed = ₹ 2,00,000, EBIT = ₹ 30,000

Sources	Levered Company (₹)	Unlevered Company (₹)
Debt (@ 10%)	1,00,000	Nil
Equity	1,00,000	2,00,000
K_e	20%	12.5%

An investor is holding 15% shares in Unlevered company. CALCULATE the increase in annual earnings of investor if he switches his holding from Unlevered to Levered Company.

1. Value of Firm:

Particulars	L	U
EBIT	30,000	30,000
- Interest	(10,000)	-
	(100,000 x 10%)	
EAE	20,000	30,000
÷ Cost of Equity (K_e)	÷ 20%	÷ 12.5%
Value of Equity	100,000	240,000
Value of Debt	100,000	-
Value of Firm	200,000	240,000
% of Holding (given)		x 15%
		36,000
	Equity: Debt (100,000 : 100,000)	Equity: Debt (18000 : 18000)

2. Sale & Buy (with loan taken)

a) Sale shares of Unlevered Co. ($K_e: 12.5\%$)	36,000
	(240,000 x 15%)
b) Loan Given	(18,000)
	(Kd: 10%)
CASH Available	18,000
c) Buy shares of Levered Co. ($K_e: 20\%$)	(18,000)
Surplus cash	-

3. Increase in Earning:

a) Return on unlevered company	(4,500)
	(36,000 x 12.5%)
b) Interest on loan given	1800
	(18,000 x 10%)
c) Return on levered company	3600
	(18,000 x 20%)
	900

1. Value of Firm:

Particulars	L	U
EBIT	20,000	20,000
- Interest	(7,000)	-
	(100,000 x 7%)	
EAE	13,000	20,000
÷ Cost of Equity (K_e)	÷ 11.5%	÷ 10%
Value of Equity	113,043	200,000
Value of Debt	100,000	-
Value of Firm	213,043	200,000
% of Holding (assumed)	10%	

2. Sale & Buy (with loan taken)

a) Sale shares of Levered Co. ($K_e: 11.5\%$)	113,043.30
	(113,043 x 10%)
b) Loan taken	10,000
	(Kd: 7%)
	(100,000 x 10%)
CASH Available	213,043.30
c) Buy shares of Unlevered Co. ($K_e: 10\%$)	(200,000)
	(200,000 x 10%)
Surplus cash	13,043.30

3. Increase in Earning:

a) Return on levered company	(1300)
	(113,043.30 x 11.5%)
b) Interest on loan taken	(700)
	(10,000 x 7%)
c) Return on unlevered company	2000
	(200,000 x 10%)
	NIL

1. Value of Firm:

Particulars	L	U
EBIT	30,000	30,000
- Interest	(10,000)	-
	(100,000 x 10%)	
EAE	20,000	30,000
÷ Cost of Equity (K_e)	÷ 12.5%	÷ 12.5%
Value of Equity	160,000	240,000
Value of Debt	100,000	-
Value of Firm	260,000	240,000
% of Holding (given)	15%	

2. Sale & Buy (with loan taken)

a) Sale shares of Levered Co. ($K_e: 12.5\%$)	24,000
	(160,000 x 15%)
b) Loan taken	15,000
	(Kd: 10%)
	(100,000 x 15%)
CASH Available	39,000
c) Buy shares of Unlevered Co. ($K_e: 12.5\%$)	(39,000)
Surplus cash	-

3. Increase in Earning:

a) Return on levered company	(3,000)
	(24,000 x 12.5%)
b) Interest on loan taken	(1,500)
	(15,000 x 10%)
c) Return on unlevered company	4,875
	(39,000 x 12.5%)
	375

1. Value of Firm:

Particulars	L	U
EBIT	20,000	20,000
- Interest	(7,000)	-
	(100,000 x 7%)	
EAE	13,000	20,000
÷ Cost of Equity	÷ 18%	÷ 10%
Value of Equity	72,222	200,000
Value of Debt	100,000	-
Value of Firm	172,222	200,000
% of Holding (assumed)		10%

2. Sale & Buy (with loan taken)

a) Sale shares of Unlevered Co. ($K_e: 10\%$)	20,000
	(200,000 x 10%)
b) Loan Given	(10,000)
	(Kd: 7%)
	(100,000 x 10%)
CASH Available	10,000
c) Buy shares of Levered Co. ($K_e: 18\%$)	(72,222)
	(72,222 x 10%)
Surplus cash	2,778

3. Increase in Earning:

a) Return on unlevered company	(2,000)
	(20,000 x 10%)
b) Interest on loan given	700
	(10,000 x 7%)
c) Return on levered company	1,300
	(72,222 x 18%)
	-

* Value of firm:

	1	
EBIT	3000	450
- Interest	$\checkmark (2000 \times 10.5\%) = (210)$	
EAE	$\checkmark (1000 \times 24\%) = 240$	

B/s			
✓ Equity	x	Asset	x
✓ Debt	x		
	(x)		(x)

same

Interest: $2000 \times 10.5\% = 210$

$\downarrow$

$V_D \times K_D =$

value of firm

PyQ July 21 (5M) (Q1b)

The details about two companies R Ltd. and S Ltd. having same operating risk are given below:

Particulars	R Ltd.	S Ltd.
Profit before interest and tax	₹ 10 lakhs	₹ 10 lakhs
Equity share capital ₹ 10 each	₹ 17 lakhs	₹ 50 lakhs
Long term borrowings @ 10%	₹ 33 lakhs	-
Cost of Equity (K_e)	18%	15%

You are required to:

- (1) Calculate the value of equity of both the companies on the basis of M.M. Approach without tax.
- (2) Calculate the Total Value of both the companies on the basis of M.M. Approach without tax. (5 Marks)

1. Value of firm:

"Levered"

"Unlevered"

R Ltd				S Ltd			
EBIT	x	=	10,00,000	EBIT		=	10,00,000
-Int	33L x 10%	=	3,30,000	-Int		=	-
EAE	? x 18%	=	670,000	EAE		=	10,00,000
÷ K_e			18%	÷ K_e			15%
Value of Equity			3722,222	Value of Equity			66,66,667
Value of Debt			3300,000	Value of Debt			-
Value of firm			70,22,222	Value of firm			66,66,667

"Over"

over

under

9

9

9

9

9

9

Concept question

Particulars	L	U	Example	
10.5% Debenture	2000			
Cost of Equity	24%	18%	<u>↑ in Surplus:</u>	
EBIT = 450			Inv't	Return
<u>Solution:</u>			Old	100,000 7000
<u>1. Value of Firm:</u>			New	90,000 7000
Particulars	L	U	10,000 same Return	
EBIT	450	450		
- Int (2000 × 10.5%)	(210)	-	<u>↑ in Return</u>	
EAE	240	450	Inv't	Return
÷ Cost of Equity	÷ 24%	÷ 18%	Old	100,000 7000
Value of Equity	1000	2500	New	100,000 9000
Value of Debt	2000	-	same 2000	
Value of Firm	3000	2500	Inv't	✓
% holding (assume = 10%)	10%			

2. Sell & Buy (loan taken)

a) sell shares of Levered Firm ($K_e = 24\%$)	100	100
(1000 × 10%)		
b) Loan taken	($K_d = 10.5\%$) 200	200
(2000 × 10%)		
Cash Available	300	300
c) Buy shares of Unlevered Firm ($K_e = 18\%$)	(250)	(300)
(2500 × 10%)		
Surplus	50	-

3. Increase in Earning:

a) Return on Levered co.	(24)	(24)
(100 × 24%)		
b) Interest on loan taken	(21)	(21)
(200 × 10.5%)		
c) Return on Unlevered co.	45	54
(250 × 18%)		(300 × 18%)
Increase in Earning	-	9
	(50 × 18%)	

(Q = silent)

Q = ↑ in Earning

ILLUSTRATION 6

(When value of levered firm is more than the value of unlevered firm)

There are two companies N Ltd. and M Ltd., having same earnings before interest and taxes (EBIT) of ₹ 20,000. M Ltd. is a levered company having a debt of ₹1,00,000 @ 7% rate of interest. The cost of equity of N Ltd. is 10% and of M Ltd. is 11.50%.

COMPUTE how arbitrage process will be carried on?

1. Value of firm:

	(M Ltd)	(N Ltd)
Particulars	L	U
EBIT	20,000	20,000
- Int (100,000 × 7%)	(7000)	-
EAT	13000	20,000
÷ k_e	÷ 11.50%	÷ 10%
Value of Equity	113043	200,000
Value of Debt	100,000	-
Value of Firm	213043	200,000
% of Holding (assume) ①	10%	

✓ Assumption: ↑ in surplus. (partial invt)
②

2. Sell & Buy (loan taken)

↑ in surplus

a) Sell shares of levered co. ($k_e = 11.5\%$) 11304.3

(113043 × 10%)

b) loan taken ($k_d = 7\%$) 10,000

(100,000 × 10%)

Cash Available 21304.3 21304.3

c) Buy shares of unlevered co. ($k_e = 10\%$) (20,000) (21304.3)

(200,000 × 10%)

Surplus 1304.3 -

3. Increase in Return:

a) Return on levered co. (1300) (1300)

(11304.30 × 11.5%)

b) Int on loan taken (700) (700)

(10,000 × 7%)

c) Return on unlevered co. 2000 2130.43

(20,000 × 10%)

(21304.3 × 10%)

-

10% → 130.43

ILLUSTRATION 7

Following data is available in respect of two companies having same business risk:

Capital employed = ₹ 2,00,000, EBIT = ₹ 30,000 and $K_e = 12.5\%$

Sources	Levered Company (₹)	Unlevered Company (₹)
Debt (@10%)	1,00,000	Nil
$\times$ Equity	1,00,000	2,00,000

An investor is holding 15% shares in levered company. CALCULATE the increase in annual earnings of investor if he switches his holding from Levered to Unlevered company.

1. Value of firm:

	(D+E)	(E)
Particulars	L	U
EBIT	30,000	30,000
-Int (100,000 × 10%)	(10,000)	-
EAE	20,000	30,000
÷ K_e	÷ 12.5%	÷ 12.5%
Value of Equity	160,000	240,000
Value of Debt	100,000	-
Value of Firm	260,000	240,000
% of Holding	15% (↑ in Earning = Full invt)	

2. Sell & Buy (loan taken)

a) Sell shares of levered co. ($K_e = 12.5\%$)	24000	↑
(160,000 × 15%)		
b) Loan taken ($K_d = 10\%$)	15000	
(100,000 × 15%)		↑ in surplus
CASH Available	39000	39000
c) Buy shares of unlevered co. ($K_e = 12.5\%$)	(39000)	36000
		(24000 × 15%)
Surplus	-	3000

3. Increase in Earning:

	(3000)	(3000)
a) Return on levered co. (24000 × 12.5%)		
b) Int on loan taken (15000 × 10%)	(1500)	(1500)
c) Return on unlevered co. (39000 × 12.5%)	4875	4800
	375	-

Concept question

Particulars	L	U
10.5% Debenture	2000	
Cost of Equity	24%	12.5%
EBIT = 450		

1. Value of Firm:

Part	L	U
EBIT	450	450
- Int (2000 x 10.5%)	(210)	-
EAE	240	450
÷ Ke	÷ 24%	÷ 12.5%
Value of Equity	1000	3600
Value of Debt	2000	-
Value of Firm	3000	3600
% of Holding (assume)		10%

No Risk

Q

E: 1000	✓ 120
D: 2000	240
3000	360

2. Sell & Buy (loan given)

↑ in surplus
(Partial)

↑ in Return
(Full)

a) Sell shares of U (Ke = 12.5%)	360	360
(3600 x 10%)		
b) Loan Given (Kd = 10.5%)	(200) ②	(240)
(2000 x 10%)		(360 x 2000/3000)
Cash Available	160	120
c) Buy shares of L (Ke = 24%)	(100) ①	120
(1000 x 10%)		(360 x 1000/3000)
Surplus	60	-

3. Increase in Return:

a) Return on U	(45)	(45)
(360 x 12.5%)		
b) Int on loan given	21	25.2
(200 x 10.5%)		(240 x 10.5%)
c) Return on L	24	28.8
(100 x 24%)		(120 x 24%)
		9

E: 1	20	x 24%	4.8
D: 2	40	x 10.5%	4.2
3	60		9

ILLUSTRATION 8

(When value of unlevered firm is more than the value of levered firm.)

There are two companies U Ltd. and L Ltd., having same NOI of ₹ 20,000 except that L Ltd. is a levered company having a debt of ₹ 1,00,000 @ 7% and cost of equity of U Ltd. & L Ltd. are 10% and 18% respectively.

COMPUTE how arbitrage process will work.

(NOI: Net operating income)

1. Value of Firm:

Part	L	U
EBIT	20,000	20,000
- Int (100,000 × 7%)	7,000	-
EAE	13,000	20,000
÷ Ke	÷ 18%	÷ 10%
Value of Equity	72,222	2,00,000
Value of Debt	1,00,000	-
Value of Firm	1,72,222	2,00,000
% of Holding (assumed)		10%

Assumption: ↑ in surplus (same earning)

2. Sell & Buy (Loan given)

a) Sell shares of U	(Ke : 10%)	20,000
(2,00,000 × 10%)		
b) Loan given	(Kd : 7%)	(10,000)
(1,00,000 × 10%)		
Cash Available		10,000
c) Buy shares of L	(Ke : 18%)	(72,222)
(72,222 × 10%)		
Surplus		2778

3. Increase in Earning:

a) Return on U	(2000)
(20,000 × 10%)	
b) Int on loan given	700
(10,000 × 7%)	
c) Return on L	1300
(7222 × 18%)	
	-

ILLUSTRATION 9

Following data is available in respect of two companies having same business risk:

Capital employed = ₹ 2,00,000, EBIT = ₹ 30,000

Sources	Levered Company (₹)	Unlevered Company (₹)
Debt (@10%)	1,00,000	Nil
Equity	1,00,000	2,00,000
K_e	20%	12.5%

An investor is holding 15% shares in Unlevered company. CALCULATE the increase in annual earnings of investor if he switches his holding from Unlevered to Levered Company.

1. Value of Firm:

Particulars	L	U
EBIT	30,000	30,000
- Int (100,000 × 10%)	(10,000)	-
EAE	20,000	30,000
÷ K_e	÷ 20%	÷ 12.5%
Value of Equity	100,000	240,000
Value of Debt	100,000	-
Value of Firm	200,000	240,000
% of Holding (given)		15%
	(↑ in Earning : full Int)	(↑ in surplus)

2. Sell & Buy (Loan given)

a) Sell shares of U ($K_e: 12.5\%$)	36000	36000
(240,000 × 15%)		
b) Loan given ($K_d: 10\%$)	(18000)	(15000)
(36000 × 1/2)		(100,000 × 15%)
Cash Available	18000	21000
c) Buy shares of L ($K_e: 20\%$)	(18000)	(15000)
(36000 × 1/2)		(100,000 × 15%)
	-	6000

3. Increase in Earning:

a) Return on U	(4500)	Int:	(4500)
(36000 × 12.5%)			
b) Int on loan given	1800	300	1500
(18000 × 10%)		(3000 × 10%)	(15000 × 10%)
c) Return on L	3600	600	3000
(18000 × 20%)		(3000 × 20%)	(15000 × 20%)
	900	900	=

MAY 22 PYQ

1. Income statement:

Particulars	1	2	3
EBIT	1950,000	1950,000	1950,000
- Int (O + New)	50,000	125000	205000
EBT	1900,000	1825000	1745000
- Tax @ 40%	(760,000)	(730,000)	(698000)
EAT	1140,000	1095000	1047000
- PD	-	-	-
EAE	1140,000	1095000	1047000
÷ ES (100,000 + new)	÷ 107500	÷ 105000	÷ 103000
EPS	10.60	10.43	10.17

Decision: • Since EPS is higher under 1st option
 • Company should select 1st option

(QNT-1): Capital structure: (Rs. 20,00,000)

Part	1	2	3
Debt	500,000	10,00,000	1400,000
Esc	1500,000	10,00,000	600,000
	20,00,000	20,00,000	20,00,000
New: ES (ESC ÷ 200)	7500	5000	3000
Interest	50,000	125000	205000
	(500,000 × 10%)	(500,000 × 10%)	(500,000 × 10%)
		+	+
		(500,000 × 15%)	(500,000 × 15%)
			+
			(400,000 × 20%)

(QNT-2): EBIT: (After Expansion)

	Present	Change	Revised
SP	40	No Δ	40
- VC	(20)	-15%	(17)
Contribution pu	20		23
x Quantity	x 100,000	+50%	x 150,000
Total Contribution	20,00,000		3450,000
- FC	(10,00,000)	+500,000	(1500,000)
EBIT	10,00,000		1950,000

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1. Income Statement:

Particulars	1	2
EBIT	540,000	540,000
- Int (120,000 + new)	192,000	120,000
EBT	348,000	420,000
- Tax @ 40%	139,200	168,000
EAT	208,800	252,000
- PD	-	-
EAE	208,800	252,000
÷ ES (80,000 + new)	÷ 80,000	140,000
EPS	2.61	1.8

Decision: .

select: 1(W.N-1): Capital Structure (Rs. 600,000)

Part	1	2
12% Debt	600,000	-
ESC	-	600,000
	600,000	600,000
New: ES (ESC ÷ 10)	-	60,000
Interest	72,000	-

(W.N-2): EBIT after Expansion:1. Capital Employed

ESC (80k x 10)	800,000
RE	1200,000
Debt	10,00,000
	(120,000 ÷ 12%)
	30,00,000

2. Return on Capital Employed (ROCE)

EBIT	
Capital Employed	x 100
450,000	
30,00,000	x 100
15%	

3. EBITafter Expansion

Old CE	30,00,000
+ New CE	6,00,000
	3600,000
	x 15%
	540,000

Example:

	EBIT ✓	1500	
	- Int	500	
	EBT	1000	1
2000	- Tax @ 30%		0.3
0.7	EAT	700	0.7
	- PD	700	
	EAE	-	

Int : 500
PD : 700
tax : 30%

$$\begin{aligned} \& \\ \text{Fin BEP} &= I + \left\{ \frac{PD}{1-t} \right\} \\ &= 500 + \left\{ \frac{700}{1-0.30} \right\} \\ &= 500 + \left\{ \frac{700}{0.7} \right\} \\ &= 500 + 1000 \end{aligned}$$

QUESTION 11. (RTP MAY 23)

Current Capital Structure of XYZ Ltd is as follows:

Equity Share Capital of 7 lakh shares of face value ₹ 20 each

Reserves of ₹ 10,00,000

9% bonds of ₹ 3,00,00,000

11% preference capital: 3,00,000 shares of face value ₹ 50 each

Additional Funds required for XYZ Ltd are ₹ 5,00,00,000.

XYZ Ltd is evaluating the following alternatives:

- I. Proposed alternative I: Raise the funds via 25% equity capital and 75% debt at 10%. PE ratio in such scenario would be 12.
- II. Proposed alternative II: Raise the funds via 50% equity capital and rest from 12% Preference capital .PE ratio in such scenario would be 11.

Any new equity capital would be issued at a face value of ₹ 20 each. Any new preferential capital would be issued at a face value of ₹ 20 each. Tax rate is 34%

DETERMINE the indifference point under both the alternatives.

QUESTION 11. (RTP MAY 23)

Current Capital Structure of XYZ Ltd is as follows:

Equity Share Capital of 7 lakh shares of face value ₹ 20 each

Reserves of ₹ 10,00,000

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11% preference capital: 3,00,000 shares of face value ₹ 50 each

Additional Funds required for XYZ Ltd are ₹ 5,00,00,000.

XYZ Ltd is evaluating the following alternatives:

I. Proposed alternative I: Raise the funds via 25% equity capital and 75% debt at 10%. PE ratio in such scenario would be 12.

II. Proposed alternative II: Raise the funds via 50% equity capital and rest from 12% Preference capital .PE ratio in such scenario would be 11.

Any new equity capital would be issued at a face value of ₹ 20 each. Any new preferential capital would be issued at a face value of ₹ 20 each. Tax rate is 34%

DETERMINE the indifference point under both the alternatives.

(WN-1): Current Capital Employed:

Particulars	Amt	Old
ESC (700,000 x 20)	140L	ES: 700,000
Reserves	10L	
9% Bonds	300L	Int: 2700,000
11% PSC (300,000 x 50)	150L	PD: 1650,000
	600L	

(WN-2): Capital structure: (500L) (PE=12) (PE=11)

Part	1	2
ESC	25% 125L	50% 250L
10% Debt	75% 375L	
12% PSC		50% 250L
	100% 500L	100% 500L
<u>New:</u> ES (ESC ÷ 20)	625000	1250,000
Interest	3750,000	-
Pre f. Div	-	30,00,000
<u>Total:</u> ES (700,000 + new)	1325000	1950,000
Int (2700,000 + new)	6450,000	2700,000
PD (1650,000 + new)	1650,000	4650,000

tax = 34%

1. Indifference Point:

$$EPS = \frac{(EBIT - I)(1 - t) - PD}{\text{No of ES}}$$

$$EBIT = x$$

$$\frac{EPS \text{ (option 1)}}{(x - 6450,000)(1 - 34\%) - 1650,000} = \frac{EPS \text{ (option 2)}}{(x - 2700,000)(1 - 34\%) - 4650,000}$$

$$\frac{1325000}{1950,000}$$

$$\frac{[(x - 6450,000) \times 0.66] - 1650,000}{1325000} = \frac{[(x - 2700,000) - 0.66] - 4650,000}{1950,000}$$

$$\frac{0.66x - 4257000 - 1650,000}{1325000} = \frac{0.66x - 1782000 - 4650,000}{1950,000}$$

$$0.66x - 5907000 = \frac{(0.66x - 6432000) \times 1325000}{1950,000} \quad \div 25$$

$$0.66x - 5907000 = \frac{(0.66x - 6432000) \times 53000}{78000} \quad \div 25$$

$$(0.66x - 5907000) \times 78 = (0.66x - 6432000) \times 53$$

$$51.48x - 460746000 = 34.98x - 340896000$$

$$16.5x = 119850,000$$

$$x = 7263636.36$$