EVA-CALCULATION

QUESTION NO. 1A *(Exam Question)* Calculate Economic Value Added (EVA) with the help of the following information of A Limited:

Financial leverage	:	1.4 times	
Capital Structure	:	Equity Capital	₹ 170 lakhs
		Reserves and Surplus	₹ 130 lakhs
		10% Debentures	₹ 400 lakhs
Cost of Equity	:	17.5%	
Income Tax Rate	:	30%	

Solution:

Financial Leverage = EBIT/ EBT $\Rightarrow$ 1.4 = EBIT/ (EBIT – Interest) $\Rightarrow$ 1.4 = EBIT / (EBIT – 40) $\Rightarrow$ 1.4 (EBIT – 40) = EBIT

$\Rightarrow$ 1.4 EBIT – 56 = EBIT $\Rightarrow$ 1.4 EBIT – EBIT = 56 $\Rightarrow$ 0.4 EBIT = 56 $\Rightarrow$ EBIT = $\frac{56}{0.4}$ = ₹ 140 lakhs

NOPAT = EBIT (1– Tax) = ₹ 140 lakhs (1 – 0.30) = ₹ 98 lakhs.

Weighted Average Cost of Capital (WACC) $K_0 = K_e W_e + K_d W_d$

= 17.5% (300/700) + (1 – 0.30) x (10%) x (400/700) = 11.5%

Economic Value Added = NOPAT – (WACC x Total Capital Employed) = ₹ 98 lakhs – (0.115 x ₹ 700 lakhs) = ₹ 17.5 lakhs

EFFECT ON VALUE OF FIRM WHEN DIVIDEND IS PAID ACCORDING TO EVA VALUE

QUESTION NO.2 *(Exam Question)(RTP)(8 Marks)* Associated Advertising Agency (AAA) just announced that the current financial year's income statement reports its net income to be ₹ 12,00,000. AAA's marginal tax rate is 40 percent, and its interest expense for the year was ₹ 15,00,000. The company has ₹ 80,00,000 of invested capital, of which 60 percent is debt. In addition, AAA tries to maintain a weighted average cost of capital (WACC) near 12 percent.

(a) Compute the operating income, or EBIT, AAA earned in the current year.

(b) What is AAA's Economic Value Added (EVA) for the current year?

(c) AAA has 5,00,000 equity share outstanding. **According to the EVA value** you computed in part b, What maximum amount can AAA pay in dividends per share ?

If AAA does not pay any dividends, what you expect to happen to value of the firm?

Solution:

(a) Taxable income or Income Before Tax = Net income / (1 - 0.40) = (₹12,00,000)/(1 - 0.40) = ₹20,00,000

EBIT = Income Before Tax + Interest = ₹20,00,000 + ₹15,00,000 = ₹35,00,000

(b) EVA = EBIT(1 - T) - (WACC X Invested capital)

= ₹35,00,000(1 - 0.40) - (0.12 x ₹80,00,000) = ₹21,00,000 - ₹9,60,000 = ₹11,40,000

(c) Maximum DPS Before the value of the firm would start to decrease based on EVA :

dividend = (₹11,40,000)/500,000 = ₹2.28.

If AAA does not pay a dividend, we would expect the value of the firm to increase because it will achieve higher growth, hence a higher level of EBIT. If EBIT is higher, then, all else equal, the value of the firm will increase. (This assumes the firm has positive NPV projects in which to invest.)

QUESTION NO.4C Compute EVA & MVA of A Ltd. with the following information: [All Figure are in ₹ Lac]

Profit and Loss Statement		Balance Sheet	
Revenue	1000	PPE	1000
Direct Costs	-390	Current Assets	300
Selling, General & Admin. Exp. (SGA)	-200		1300
EBIT	410	Equity	700
Interest	-10	Reserves	100
EBT	400	Non-Current Borrowings	100
Tax Expense	-120	Current Liabilities & Provisions	400
EAT	280		1300

Assume Bad Debts provision of ₹ 20 Lac is included in the SGA, and same amount is reduced from the trade receivables in current assets. Also assume that the pre-tax Cost of Debt is 12%, Tax Rate is 30% and Cost of Equity (i.e. shareholder's expected return) is 8.45%.Current MV of the firm be 1000.

Solution:

Step I: Computation of NOPAT

NOPAT	
EBIT	410
Less: Taxes	-123
Add: Non-Cash Expenses	20
NOPAT	307

Step II: Finding out the Invested Capital:

Invested Capital	
Total Assets	1300
Less: Non Interest bearing liabilities	-400
	900
Add: Non Cash adjustment	20
	920

Note: It is assumed that the current liabilities also include the 100 of tax liability.

Step III: Compute the WACC: WACC = Cost of equity + Cost of debt

In this case, WACC = (800/900 x 8.45%) + [100/900 x 12% (1 - 0.30)] = 8.44%

Step IV: Find out the Capital Charge: Capital Charge = Invested Capital x WACC = 920 x 8.44% = 77.65

Step V: EVA = Adjusted NOPAT - Capital Charge = 307 - 77.65 = 229.35

Market Value Added (MVA) : 1000 - 920 = 80

EVA-TREATEMENT OF ADVERTISEMENT EXPENDITURE & REPLACEMENT VALUE

QUESTION NO.5 ABC Ltd. has divisions A,B & C. The division C has recently reported on annual operating profit of ₹ 20,20,00,000. This figure arrived at after charging ₹ 2 crores full cost of advertisement expenditure for launching a new product. (Hint: It means Actual Operating Profit is 22,20,00,000). The benefits of this expenditure is expected to be lasted for 3 years. The cost of capital of division C is 11% and cost of debt is 8%. The Net Assets (Invested Capital) of Division C as per latest Balance Sheet is ₹ 60 crore, but replacement cost or Actual Cost of these assets is estimated at ₹ 84 crore. **You are required to** compute EVA of the Division C.

Solution:

First necessary adjustment of the data as reported by historical accounting system shall be made as follows:

Operating Profit	20,20,00,000

Add: Cost of Advertisement Expenditures	2,00,00,000
	22,20,00,000

Invested Capital (as per replacement cost) is ₹84 crore. Accordingly,
EVA = Operating Profit - (Invested Capital x Cost of Capital) = ₹22,20,00,000 - ₹84 crore x 11%
= ₹22.2 crore - ₹9.24 crore = ₹12.96 crore

DOUBT: QUESTION-Sir is ques me hmne puri 2 crore ki cost add back krdi pr uska 1/3 part to less hona chaie kuki vo isi prd ka expense hai? Esa ku ni hua?-**nikhil singla**
ANSWER-Full advertisement expensed had been considered as non operating.

DECISION BASED ON EVA

QUESTION NO.12A *(RTP)(Exam Question)(12 Marks)* Consider the following operating information gathered from 3 companies that are identical except for their capital structures:

	P Ltd.	Q Ltd.	R Ltd.
Total invested capital	€100,000	€100,000	€100,000
Debt/assets ratio or Debt/Equity+Debt Ratio	0.80	0.50	0.20
Shares outstanding	6,100	8,300	10,000
Before-tax cost of debt(Interest Rate)	14%	12%	10%
Cost of equity	26%	22%	20%
Operating income, (EBIT)	€25,000	€25,000	€25,000
Net Income	€8,970	€12,350	€14,950
Tax rate	35%	35%	35%

(a) Compute the weighted average cost of capital, WACC, for each firm. **(b)**Compute the Economic Value Added, EVA, for each firm. **(c)**Based on the results of your computations in part b, which firm would be considered the best investment? Why? **(d)**Assume the industry P/E ratio generally is 15. Using the industry norm, estimate the price for each share. **(e)**Calculate the estimated market capitalisation for each of the Companies.

Solution:

(a)WACC P Ltd. = [14.0% (1 - 0.35)](0.80) + 26.0% (0.20) = 12.48%
WACC Q Ltd. = [12.0% (1 - 0.35)](0.50) + 22.0% (0.50) = 14.90%
WACC R Ltd. = [10.0% (1 - 0.35)](0.20) + 20.0% (0.80) = 17.30%
(b)EVA = EBIT(1 - T) - (WACC x Invested capital)
EVA P Ltd. = €25,000(1 - 0.35) - (0.1248 x €100,000) = €16,250 - €12,480 = €3,770
EVA Q Ltd. = €25,000(1 - 0.35) - (0.1490 x €100,000) = €16,250 - €14,900 = €1,350
EVA R Ltd. = €25,000(1 - 0.35) - (0.1730 x €100,000) = €16,250 - €17,300 = -€1,050

(c)EVA P > EVAQ > EVAR; Thus, P Ltd. would be considered the best investment. The result should have been obvious, given that the firms have the same EBIT, but WACCP < WACCQ < WACCR.

(d)	P Ltd.	Q Ltd.	R Ltd.
EBIT	€25,000	€25,000	€25,000
Interest(Working Note)	(11,200)	(6,000)	(2,000)
Taxable income	13,800	19,000	23,000
Tax (35%)	(4,830)	(6,650)	(8,050)
Net income	€ 8,970	€12,350	€14,950
Shares	6,100	8,300	10,000

EPS	€1.470	€1.488	€1.495
MPS: EPS x P/E	€22.05	€22.32	€22.43

Working Notes : Calculation Of Interest :

P = €100,000(0.80) x 0.14 = €11,200; Q = €100,000(0.50) x 0.12 = € 6,000; R = €100,000(0.20) x 0.10 = € 2,000

(e)Market Capitalisation

Estimated Stock Price (₹)	€22.05	€22.32	€22.43
No. of shares	6,100	8,300	10,000
Estimated Market Cap(₹)	134505	185256	224300