

13

BUSINESS VALUATION

Question 1

Equity of KGF Ltd. (KGFL) is ₹ 410 Crores, its debt, is worth ₹ 170 Crores. Printer Division segments value is attributable to 74%, which has an Asset Beta (β_p) of 1.45, balance value is applied on Spares and Consumables Division, which has an Asset Beta (β_{sc}) of 1.20 KGFL Debt beta (β_D) is 0.24.

You are required to calculate:

- (i) Equity Beta (β_E),
- (ii) Ascertain Equity Beta (β_E), if KGF Ltd. decides to change its Debt Equity position by raising further debt and buying back of equity to have its Debt Equity Ratio at 1.90. Assume that the present Debt Beta (β_{D1}) is 0.35 and any further funds raised by way of Debt will have a Beta (β_{D2}) of 0.40.

Whether the new Equity Beta (β_E) justifies increase in the value of equity on account of leverage?

(MTP 12 Marks May'20)

Answer:

(i) Equity Beta

To calculate Equity Beta first we shall calculate Weighted Average of Asset Beta as follows:

$$= 1.45 \times 0.74 + 1.20 \times 0.26 = 1.073 + 0.312 = 1.385$$

Now we shall compute Equity Beta using the following formula:

$$\beta_{\text{Asset}} = \beta_{\text{Equity}} \left[\frac{E}{E + D(1 - t)} \right] + \beta_{\text{Debt}} \left[\frac{D(1 - t)}{E + D(1 - t)} \right]$$

Accordingly,

$$1.385 = \beta_{\text{Equity}} \left[\frac{410}{410 + 170} \right] + \beta_{\text{Debt}} \left[\frac{170}{410 + 170} \right]$$

$$\begin{aligned} 1.385 &= \beta_{\text{Equity}} \left[\frac{410}{580} \right] + 0.24 \left[\frac{170}{580} \right] \\ \beta_{\text{Equity}} &= 1.86 \end{aligned}$$

(ii) Equity Beta on change in Capital Structure

Particulars	Value
Total Value of Firm (Equity ₹ 410 cr + Debt ₹ 170 cr)	₹ 580 Cr
Desired Debt Equity Ratio	1.90:1.00
Desired Debt Level = $\frac{\text{Total Value} \times \text{Debt Ratio}}{\text{Debt Ratio} + \text{Equity Ratio}}$	₹ 380 Cr
Less: Value of Existing Debt	(₹ 170 Cr)
Value of Debt to be Raised	₹ 210 Cr

Amount of Debt to be raised:

$$\begin{aligned} \text{Equity after Repurchase} &= \text{Total value of Firm} - \text{Desired Debt Value} \\ &= ₹ 580 \text{ Cr} - ₹ 380 \text{ Cr} = ₹ 200 \text{ Cr} \end{aligned}$$

Weighted Average Beta of KGFL:

Source of Finance	Investment (₹ Cr)	Weight	Beta of the Division	Weighted Beta
Equity	200	0.345	$\beta(E = X)$	0.345x
Debt – 1	170	0.293	0.35	0.103
Debt – 2	210	0.362	0.40	0.145
	580	Weighted Average Beta		0.248 + (0.345x)

$$\beta_{KGFL} = 0.248 + 0.345 \times 1.385 = 0.248 + 0.345x$$

$$0.345x = 1.385 - 0.248$$

$$x = \frac{1.137}{0.345} = 3.296$$

$$\beta_{KGFL} = 3.296$$

Question 2

You are interested in buying some equity stocks of RK Ltd. The company has 3 divisions operating in different industries. Division A captures 10% of its industries sales which is forecasted to be ₹ 50 crore for the industry. Division B and C captures 30% and 2% of their respective industry's sales, which are expected to be ₹ 20 crore and ₹ 8.5 crore respectively. Division A traditionally had a 5% net income margin, whereas divisions B and C had 8% and 10% net income margin respectively. RK Ltd. has 3,00,000 shares of equity stock outstanding, which sell at ₹ 250.

The company has not paid dividend since it started its business 10 years ago. However, from the market sources you come to know that RK Ltd. will start paying dividend in 3 years time and the pay-out ratio is 30%. Expecting this dividend, you would like to hold the stock for 5 year. By analysing the past financial statements, you have determined that RK Ltd.'s required rate of return is 18% and that P/E ratio of 10 for the next year and on ending P/E ratio of 20 at the end of the fifth year are appropriate.

Evaluate:

- (i) Whether you will be in purchasing RK Ltd. equity at this time based on your one year forecast?
- (ii) Price you will like to pay for the stock of RK Ltd if you expect earnings to grow @ 15% continuously. Ignore taxation.

PV factors are given below:

Years	1	2	3	4	5
PVIF@18%	0.847	0.718	0.609	0.516	0.437

(MTP 8 Marks March'21)

Answer:

Working Notes:

Computation of Earning Per Share (EPS)

Particulars		Amount (₹)
Margin of Division A	(₹ 50 crore × 10% × 5%)	25,00,000
Margin of Division B	(₹ 20 crore × 30% × 8%)	48,00,000
Margin of Division C	(₹ 8.5 crore × 2% × 10%)	1,70,000
		74,70,000
No. of Equity Shares		3,00,000
EPS		₹ 24.90

- (i) **Market Price based on One Year Forecast**

Expected Market Price at the end of the year = ₹ 24.90 × 10 = ₹ 249

PV of the Expected Price = ₹ 249 × 0.847 = ₹ 210.90

I would **NOT** like to purchase the share as the expected market price of shares is less than its current price of ₹ 250.

(ii) If Earning is expected to grow @ 15%

Year	EPS (₹)	Dividend (₹)	PVF@18%	PV (₹)
1	28.64	---	0.847	---
2	32.93	---	0.718	---
3	37.87	11.36	0.609	6.92
4	43.55	13.07	0.516	6.74
5	50.08	15.02	0.437	6.56
				20.22

$$\text{Share Price after 5 Years} = \frac{15.02(1.15)}{0.18 - 0.15} = ₹ 575.77$$

PV of the Market Price after 5 years = ₹ 575.77 × 0.437 = ₹ 251.61

Total PV of inflows = ₹ 20.22 + ₹ 251.61 = ₹ 271.83

Thus, the maximum price I would be willing to pay for the share shall be ₹ 271.83.

Question 3

XY Ltd., a Cement Manufacturing Company has hired you as a financial consultant of the company. The Cement Industry has been very stable for some time and the cement companies SK Ltd. & AS Ltd. are similar in size and have similar product market mix characteristic. Use comparable method to value the equity of XY Ltd. In performing analysis, use the following ratios:

- (i) Market to book value
- (ii) Market to replacement cost
- (iii) Market to sales
- (iv) Market to Net Income

The following data are available for your analysis:

(Amount in ₹)

	SK Ltd.	AS Ltd.	XY Ltd.
Market Value	450	400	
Book Value	400	300	250
Replacement Cost	600	550	500
Sales	550	450	500
Net Income	18	16	14

(MTP 8 Marks Oct 21)

Answer:

Estimation of Ratios

Sl. No.	Particulars	SK Ltd.	AS Ltd.	Average
(i)	Market to Book Value	$\left(\frac{450}{400}\right) = 1.125$	$\left(\frac{400}{300}\right) = 1.333$	1.2290
(ii)	Market to Replacement Cost	$\left(\frac{450}{600}\right) = 0.750$	$\left(\frac{450}{550}\right) = 0.727$	0.7385
(iii)	Market to Sales	$\left(\frac{450}{550}\right) = 0.818$	$\left(\frac{400}{450}\right) = 0.889$	0.8535
(iv)	Market to Net Income	$\left(\frac{450}{18}\right) = 25$	$\left(\frac{400}{16}\right) = 25$	25

Application of Ratios to XY Ltd.

Sl. No.	Particulars	XY Ltd. (₹)	Average	Indicative Value of XY Ltd. (₹)
(i)	Book Value	250	1.2290	$250 \times 1.2290 = 307.25$
(ii)	Replacement Cost	500	0.7385	$500 \times 0.7385 = 369.25$
(iii)	Sales	500	0.8535	$500 \times 0.8535 = 426.75$
(iv)	Net Income	14	25	$14 \times 25 = 350.00$
Average				₹ 363.31

Value of XY Ltd, according to the comparable method is ₹ 363.31

Question 4

The Balance Sheet of M/s. Sundry Ltd. as on 31-03-2020 is follows: (` in lakhs)

Liabilities	₹	Assets	₹
Share Capital	300	Fixed Assets	600
Reserves	200	Inventory	500
Long Term Loan	400	Receivables	240
Short Term Loan	300	Cash	60
Payables & Provisions	200		0
Total	1400	Total	1400

Sales for the year was ₹ 600 lakhs. The sales are expected to grow by 20% during the year. The profit margin and dividend pay-out ratio are expected to be 4% and 50% respectively.

The company further desires that during the current year Sales to Short Term Loan and Payables and Provision should be in the ratio of 4 : 3. Ratio of fixed assets to Long Term Loans should be 1.5. Debt Equity Ratio should not exceed 1.5.

You are required to determine:

- (i) The amount of External Fund Requirement (EFR)
- (ii) The amount to be raised from Short Term, Long Term and Equity funds.

(MTP 8 Marks March'23, PYP 8 Marks Jan'21)

Answer:

(i) External Funds Requirement (EFR):

	(₹ in Lakhs)
Expected Sales (₹ 600 + 20% of ₹ 600)	720.00
Profit Margin @ 4%	28.80
Dividend payout ratio @ 50%	14.40
Balance to be ploughed back (A)	14.40
Additional funds required (₹ 1400 – ₹ 200*) × 0.20 (B)	240.00
Balance to be met from external source (B – A)	225.60

*As current liabilities shall also be increased proportionately with increase in sales.

(ii) Amount to be raised from different sources with following conditions:

- Sales to short term loans and payables & provisions 4:3
- Ratio of fixed assets to long term loans 1.5
- Debt equity ratio should not exceed 1.5

(1) Amount to be raised from short term funds:

	(₹ in Lakhs)
New amount of short-term loans and payables & provision (3/4 × 600)	450
Less: Existing Amount of short-term loans and payables & provision	500
Amount to be raised from short term funds	Nil

(2) Amount to be raised from short term funds:

	(₹ in Lakhs)
New fixed assets (₹ 600 + 20% of ₹ 600)	720
New long-term loans (₹ 720/1.5)	480
Less: Existing long-term loans	400
Amount to be raised from Long term funds	80

(3) Amount to be raised from equity funds:

	(₹ in Lakhs)
Amount to be raised from external sources	225.60
Less: Amount to be raised from short term funds	---
Less: Amount to be raised from Long term funds	80.00
Balance amount to be raised from equity funds	145.60

Alternative Solution

(i) External Funds Requirement (EFR)

$$EFR = \left(\frac{TA}{S} - \frac{P}{S} \right) \times \Delta S - N \times \text{Projected Sales} \times (1 - D)$$

Where,

TA = Total Assets

S = Current Sales

P = Payables and Provisions

ΔS = Change in Sales

N = Net Profit Margin Ratio

D = Dividend Payout Ratio Accordingly,

$$EFR = \left(\frac{1,400}{600} - \frac{200}{600} \right) \times 120 - 0.04 \times 720 \times 0.9 = ₹ 225.6 \text{ lakhs}$$

(ii) Funds to be raised from Various Sources

(1) Short Term Funds

Let X be the new Short-Term Loan then meeting the given condition the Additional Requirement shall be computed as follows:

$$\frac{4}{3} = \frac{600 \times 1.2}{200 \times 1.2 + x}$$

$$X = 300.00$$

Short-Term Loans required	₹ 300.00 lakhs
Less: Existing	₹ 300.00 lakhs
Additional requirement	0.00 lakhs

(2) Long term funds

Let Y be the new Long-Term Loans then meeting the given condition the Additional Requirement shall be computed as follows:

$$1.5 = \frac{FA}{\text{Long Term Loans}}$$

$$1.5 = \frac{600 \times 1.2}{Y}$$

$$Y = 480$$

New Long Term Loans	₹ 480.00 Lakhs
Existing	₹ 400.00 Lakhs
Additional	₹ 80.00 Lakhs

(3) Equity to be raised

EFR	₹ 225.60 Lakhs
Less: Short Term Loans	0.00 Lakhs
Long term	₹ 80.00 Lakhs
Equity to be raised	₹ 145.60 Lakhs

$$\text{New DER} = \frac{\text{Debt}}{\text{Shareholder's Fund}}$$

$$= \frac{400}{300 + 145.60 + (1.2 \times 200)} = 0.70$$

Condition is satisfied

Question 5

Sun Ltd. recently made a profit of ₹ 200 crore and paid out ₹ 80 crore (slightly higher than the average paid in the industry to which it pertains). The average PE ratio of this industry is 9. The estimated beta of Sun Ltd. is 1.2. As per Balance Sheet of Sun Ltd., the shareholder's fund is ₹ 450 crore and number of shares is 10 crore. In case the company is liquidated, building would fetch ₹ 200 crore more than book value and stock would realize ₹ 50 crore less.

The other data for the industry is as follows:

Projected Dividend Growth	4%
Risk Free Rate of Return	6%
Market Rate of Return	11%

Calculate the valuation of Sun Ltd. using

- (a) P/E Ratio
- (b) Dividend Growth Model
- (c) Book Value
- (d) Net Realizable Value

(RTP May'21)

Answer:

(a) ₹ 200 crore × 9 = ₹ 1800 crore

(b) $K_e = 6\% + 1.2 (11\% - 6\%) = 12\%$

$$= \frac{80 \text{ Crore} \times 1.04}{0.12 - 0.04} = ₹ 1040 \text{ Crore}$$

(c) ₹ 450 crore

(d) ₹ 450 crore + ₹ 200 crore – ₹ 50 crore = ₹ 600 crore

Question 6

Compute Economic Value Added (EVA) of Good luck Ltd. from the following information:

Profit & Loss Statement

Particulars	(₹ In Lakh)
(a) Income - Revenue from Operations	2000
(b) Expenses - Direct Expenses	800
Indirect Expenses	400
(c) Profit before interest & tax (a-b)	800
(d) Interest	30
(e) Profit before tax (c-d)	770
(f) Tax	231
(g) Profit after tax (e-f)	539

Balance Sheet

Particulars	(₹ in Lakh)
Equity and Liabilities:	
(a) Shareholder's Fund - Equity Share Capital	1000
Reserve and Surplus	600
(b) Non-Current Liabilities - Long Term Borrowings	200
(c) Current Liabilities	800
Total	2600
Assets:	
(a) Non-Current Assets	2000
(b) Current Assets	600
Total	2600

Other Information:

- (1) Cost of Debts is 15%.
- (2) Cost of Equity (i.e. shareholders' expected return) is 12%.
- (3) Tax Rate is 30%.
- (4) Bad Debts Provision of ₹ 40 lakhs is included in indirect expenses and ₹ 40 lakhs reduced from receivables in current assets

(PYP 8 Marks May '19)

Answer:

$$\text{EVA} = \text{NOPAT} - (\text{Invested Capital} \times \text{WACC})$$

$$\text{NOPAT} = \text{EBIT} - \text{Tax} + \text{Non-Cash Expenses}$$

$$= 800 \text{ lakhs} - 231 \text{ lakhs} (*240 \text{ lakhs}) + 40 \text{ lakhs}$$

$$= ₹ 600 \text{ lakh}$$

(OR)

$$\text{Operating Income} = \text{Taxable Income} + \text{Interest} + \text{Non-cash Expenses}$$

$$= 539 + 30(1 - 0.30) + 40 = ₹ 600 \text{ lakh}$$

$$\text{Invested Capital} = 1000 + 600 + 200 = 1800$$

$$= 1800 + 40 \text{ (Non-cash expenses)}$$

$$= ₹ 1840 \text{ lakhs}$$

$$\text{WACC} = \frac{1600}{1800} \times 12\% + \frac{200}{1800} \times 15\% (1 - 0.3)$$

$$= 10.67\% + 1.17\% = 11.84\%$$

$$\text{Now, EVA} = 600 - (1840 \times 11.84\%)$$

$$= 600 - 217.86$$

$$= ₹ 382.14 \text{ Lakhs}$$

OR

$$\text{WACC} = \frac{1000}{1200} \times 12\% + \frac{200}{1200} \times 15\% (1 - 0.3)$$

$$= 10.00\% + 1.75\% = 11.75\%$$

$$\text{Now, EVA} = 600 - (1840 \times 11.75\%)$$

$$= 600 - 216.20$$

$$= ₹ 383.80 \text{ lakhs}$$

* Answer is wrong in the suggested answers of ICAI, Tax amount as per P&L is considered which is wrong tax rate on EBIT has to be considered, answer has been revised.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

The performance of the examinees was of average level. However, some of the examinees could not calculate NOPAT. Further, some examinees made wrong calculation of WACC and capital employed due to adjustment of Bad Debts Provision. This made them unable

Question 7

Mr. X, a financial analyst, intends to value the business of PQR Ltd. in terms of the future cash generating capacity. He has projected the following after tax cash flows:

Year:	1	2	3	4	5
Cash flows (₹ in lakh)	1,760	480	640	860	1,170

It is further estimated that beyond 5th year, cash flows will perpetuate at a constant growth rate of 8% per annum, mainly on account of inflation. The perpetual cash flow is estimated to be ₹ 10,260 lakh at the end of the 5th year.

Required:

- What is the value of the firm in terms of expected future cash flows, if the cost of capital of the firm is 20%.
- The firm has outstanding debts of ₹ 3,620 lakh and cash/bank balance of ₹ 2,710 lakh. Calculate the shareholder value per share if the number of outstanding shares is 151.50 lakh.
- The firm has received a takeover bid from XYZ Ltd. of ₹ 225 per share. Is it a good offer?

[Given: PVIF at 20% for year 1 to Year 5: 0.833, 0.694, 0.579, 0.482, 0.402]

(8 Marks Nov '19)

Answer:

Value of Firm

Year	Cash Flow (₹ in lakhs)	PVF	PV (₹ in lakhs)
1	1760	0.833	1466.08
2	480	0.694	333.12
3	640	0.579	370.56
4	860	0.482	414.52
5	1170	0.402	470.34
PV of Cash flows upto year 5			3054.62

If PV of Terminal Value is considered with the growth rate (at the end of 5TH year)

$$\frac{10,260 (1 + 0.08)}{0.20 - 0.08} = \frac{11,080.80}{0.12} = ₹ 92,340 \text{ lakh}$$

Now, PV (at the beginning of the year)

$$= ₹ 92,340 \times 0.402 = ₹ 37,120.68 \text{ Lakhs}$$

$$\text{So, Present Value of the firm} = ₹ 3054.62 + ₹ 37120.68 = ₹ 40175.30 \text{ Lakhs}$$

(ii) Value per share

$$= \text{Value of Firm} - \frac{\text{Value of Debt}}{\text{No of shares}}$$

$$= \frac{(40175.30 - 3620)}{151.50} = ₹ 241.29$$

(iii) Takeover bid of ₹ 225 per share seems to be not a good offer as it is lesser than the intrinsic value i.e. value per share of ₹ 241.29.

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

Poor performance was observed in this question as many examinees have failed to calculate the terminal value with growth @8% per annum against perpetual cash flow. Further, many examinees wrongly added Cash/Bank Balance to the value arrived at after deducting the value of debt from the value of firm to calculate value per share. Further, majority of the examinees considered existing PBIT ignoring enhanced return on additional capital.

Question 8

Following is the information of M/s. DY Ltd. for the year ending 31/03/2021:

Particulars	
Sales	₹ 1000 Lakh
Operating Expenses Including Interest	₹ 620 Lakh
8% Debentures	₹ 250 Lakh
Equity Share Capital (Face value of ₹ 10 each)	₹ 250 Lakh
Reserves and Surplus	₹ 250 Lakh
Market Value of DY Ltd	₹ 900 Lakh
Corporate Tax Rate	30%
Risk free Rate of Return	7%
Market Rate of Return	12%
Equity Beta	1.4

You are required to-

- (i) Calculate Weighted Average Cost of Capital of DY Ltd.
- (ii) Calculate Economic Value Added
- (iii) Calculate Market Value Added

(PYP 8 Marks Dec'21)

Answer:

- (i) **Weighted Average Cost of Capital of DY Ltd.**

Cost of Equity as per CAPM

$$\begin{aligned}
 k_e &= R_f + \beta \times \text{Market Risk Premium} \\
 &= 7\% + 1.4 \times [12\% - 7\%] \\
 &= 7\% + 7\% = 14\%
 \end{aligned}$$

$$\text{Cost of Debt } k_d = 8\% (1 - 0.30) = 5.60\%$$

$$\begin{aligned}
 \text{WACC (ko)} &= k_e \times \frac{E}{E + D} + k_d \times \frac{D}{E + D} = 14.00 \times \frac{500}{750} + 5.60 \times \frac{250}{750} \\
 &= 9.33\% + 1.87\% = 11.20\%
 \end{aligned}$$

- (ii) **Economic Value Added (EVA) of DY Ltd.**

Particulars		₹ Lakhs
Sales		₹ 1000
Operating Expenses (excluding Interest)	₹ 620	₹ 600
	₹ 20	
		₹ 400
Less: Tax @ 30%		₹ 120
Net Operating Profit after Tax (NOPAT)		₹ 280

Calculation of Capital Employed

	₹ Lakhs
Equity Share Capital	250
Reserves & Surplus	250
8% Debentures	250
Total Capital Employed	750

$$\text{EVA} = \text{NOPAT} - (\text{WACC} \times \text{Total Capital})$$

$$\text{EVA} = ₹ 280 \text{ Lakh} - 0.1120 \times ₹ 750 \text{ lakhs}$$

$$\text{EVA} = 196.00 \text{ lakhs}$$

(iii) Determination of Market Value Added (MVA)

	₹ Lakh
Market value of Equity Stock [₹ 900 Lakh – ₹ 250 Lakh]	650
Equity Fund [₹ 250 Lakh + ₹ 250 Lakh]	500
Market Value Added	150

Alternatively, it can also be computed as follows:

	₹ Lakh
Market value of DY Ltd.	900
Capital employed [₹ 250 Lakh + ₹ 250 Lakh + ₹ 250 Lakh]	750
Market Value Added	150

EXAMINERS' COMMENTS ON THE PERFORMANCE OF EXAMINEES:

In this question on Corporate Valuation overall above average performance has been observed. Though some students were not aware about the technical concept of the question especially in context of Market Value Added.