



N P T E L O N L I N E C E R T I F I C A T I O N C O U R S E S

MERGERS, ACQUISITIONS AND CORPORATE RESTRUCTURING

Prof. CHANDRA SEKHAR MISHRA

Vinod Gupta School of Management
Indian Institute of Technology Kharagpur

LECTURE: 16

TITLE: Valuation in M&A: Cash Flow
Based Approach-5 (Free Cash
Flow Models)

- Concept of Free cash flow
- Free cash flow to firm
- Valuation using FCFF
- Comprehensive exercise on estimation of FCFF and valuation of company

Keywords



- Valuation
- FCFF
- Valuation of non-operating assets

Valuation of Firm using FCFF

- Concept: The value of an enterprise or firm share is the present value of future free cash flow to the firm.
- The generic formula for valuation using free cash flow:

$$P_0 = \frac{FCF_1}{(1+k)^1} + \frac{FCF_2}{(1+k)^2} + \frac{FCF_3}{(1+k)^3} + \dots + \frac{FCF_\infty}{(1+k)^\infty}$$

- Where,
 - P_0 = Present value of firm or enterprise
 - FCF_1 to FCF_∞ = Expected free cash flow for firm
 - K = Cost of capital of firm or enterprise

FCFF = Net operating profit after tax (NOPAT) **plus** Non-cash charges (e.g. Depreciation) **minus** capital expenditure **plus/ minus** change in net working capital.

Free Cash Flow to Firm (FCFF)

- Generic explanation of FCFF: the cash that the firm is free to distribute to creditors (lenders) and shareholders, since the requirements for working capital and capital expenditure are already taken care of.
- $FCFF = \text{Net operating profit after tax (NOPAT)} + \text{Non-cash charges (e.g. Depreciation)} - \text{capital expenditure} + / - \text{change in net working capital}$
 - $NOPAT = \text{Earnings before interest and tax (EBIT)} \times (1 - \text{Tax rate})$
 - Change in net working capital: change in current assets, except cash less change in current liabilities

Valuation using FCFF – Dealing with Other/ Non-operating Assets

- Guiding principle: since the cash flow from the non-operating assets are not considered in the estimation of FCFF, those need to be valued separately and added.
- Non-operating or unutilized assets of the company: find the market value and add to the valuation of the firm. If market value is not available, book value of the asset can be considered.
- Excess cash and cash equivalents: Estimate it and add to the valuation.
- Investment in marketable securities: find the market value and add to the valuation.
- Investment in subsidiaries: value the subsidiary separately and add to the valuation based on % held by the company in the subsidiary.

Data for an exercise on Valuation of Firm using FCFF

Gamma Limited	
Figures are in Rs. Crore unless mentioned otherwise	
Income Statement:	Year 0
Revenue	2,500.00
Operating cost: Fixed (excluding depreciation)	600.00
Depreciation	125.00
Operating cost: Variable	800.00
SG&A (variable)	175.00
Loss on sale of fixed assets	12.00
Income from other sources	10.00
EBIT	798.00
Interest	40.00
EBT	758.00
Tax	189.50
Net profit	568.50

Data for an exercise Valuation of Firm using FCFF, contd..

Gamma Limited: Other relevant inputs (Figures are in Rs. Crore unless mentioned otherwise):	
Expected annual growth in revenue (1 st to 3 rd year)	7.00%
Expected annual growth in revenue (4 th to 5 th year)	4.00%
Net working capital to sales ratio	25.00%
Capex as percent of sales	8.00%
Depreciation as percent of sales	5.00%
Effective tax rate (ETR)	25.00%
Market value of bonds issued by the company	400
Book value of equity	500
Share price (Rs.)	60
Growth in FCFF beyond 5 th year	3%
Market value of non-operating assets held by the company	8
Number of equity shares outstanding (in Crore)	30
YTM of bonds issued by the company	10%
10-year Government bond yield	7%
Market risk premium	8%
Beta of the stock of the company	0.9

Value Gamma Limited using FCFF with the help of spreadsheet.

CONCLUSION

- Free cash flow to firm can be estimated with help of operating data, like revenue, expenses, etc. Using FCFF the operating part of the company can be valued.
- Non-operating assets of the company have to be valued separately and added to the value using free cash flow to find the enterprise value.

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1. Bruner, R. F.(2004). *Applied Mergers and Acquisitions*,. John Wiley & Sons.
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LECTURE: 17

TITLE: Valuation in M&A: Cash Flow
Based Approach-6 (Free Cash
Flow Models)

oncepts covered



- Free cash flow to firm
- Free cash flow to equity
- Firm valuation using FCFF
- Equity valuation using FCFE
- Exercises on valuation



Keywords



- Valuation
- FCFF
- FCFE
- Multi-stage model
- Value of Firm
- Value of Equity
- Cost of equity
- Cost of capital

Generic Formula for Valuation using FCF

$$P_0 = \frac{FCF_1}{(1+k)^1} + \frac{FCF_2}{(1+k)^2} + \frac{FCF_3}{(1+k)^3} + \dots + \frac{FCF_\infty}{(1+k)^\infty}$$

- Where,
 - P_0 = Present value of firm or enterprise
 - FCF_1 to FCF_∞ = Expected free cash flow for firm
 - k = Cost of capital of firm or enterprise

FCFF = Net operating profit after tax (NOPAT) **plus** Non-cash charges (e.g. Depreciation) **minus** capital expenditure **plus/ minus** change in net working capital.

Valuation using FCF with multi-stage growth

$$P_0 = \frac{FCF_1}{(1+k)^1} + \frac{FCF_2}{(1+k)^2} + \frac{FCF_3}{(1+k)^3} + \dots + \frac{FCF_n}{(1+k)^n} + \frac{TV_n}{(1+k)^n}$$

$$TV_n = \frac{FCF_{n+1}}{(k - g)}$$

- Where,
 - P_0 = Present value of firm or enterprise
 - FCF_1 to FCF_n = Expected free cash flow for firm from year 1 to n.
 - TV_n = Terminal Value of the Firm at the end of year n
 - k = Cost of capital of firm or enterprise
 - g = growth in FCF after year n.

Exercises on Estimation of FCFF and Valuation

Exercise 17.1

- a. Suppose Company A is expected to generate revenues of Rs.200 crore in the next year. The expected variable expenses as % revenue, cash fixed expenses and depreciation are going to be 40%, Rs.30 crore and Rs.10 crore. The company is expected to spend Rs. 25 crore on capex and it needs Rs.9 crore as extra non-cash net working capital. The company is subject to 25% corporate tax rate. What is the expected free cash flow in the next year? Assume the company does not have any non-operating assets.
- b. If the FCFF estimated above is expected to grow at 5% and the company's required rate of return is 14%, what is the value of the company?

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.1

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.2

- a. Continuing with Exercise 17.1, suppose the company has Rs.120 crore of debt, what is the value of equity?
- b. If the company has 12 crore equity shares of Rs.10 face value, what is the value per equity share?

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.3

- a. Continuing with Exercise 17.1 and 17.2 suppose the company has surplus land of Rs.7 crore book value and the land has a market value of Rs.9 crore. The estimated excess cash and cash equivalents with the company is Rs.3 crore. What is the revised value of each equity share?

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.4

A target, an unlisted company, is expected to generate profit after tax of Rs.120 crore in the next year. Depreciation is estimated at Rs.30 crore. The company needs Rs.25 crore for capex and Rs.8 crore as additional non-cash working capital. It will have net borrowing of Rs.12 crore in the next year.

- Estimate the free cash flow for equity for next year.
- A comparable company's stock is listed in the stock exchange and it has a beta of 0.8. The comparable company's debt-equity ratio is 0.5:1 and is subject to 30% tax rate. The target's debt-equity ratio is 0.3:1 and it is subject to 25% tax rate. The risk free rate and market rate of return are 7% and 15% respectively. Find the cost of equity of the target using capital asset pricing model.
- Find the value of equity of the target if the FCFE is expected to grow at 6% per annum till perpetuity. What is the value per share if the target has 40 crore equity shares?

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.4 a

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Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.4 b

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.4 c

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.5

ABC Limited, a listed company is selected for acquisition. ABC has generated Rs.200 million of operating income, i.e. earnings before interest and taxes (EBIT) in year 1. The company is expected to generate this level of EBIT indefinitely. It had Rs.12 million of depreciation expense. Capital spending totaled Rs.18 million. At the end of year 0 and year 1 it had net working capital of Rs.65 and Rs.74 million. The company is subject to 30% tax rate. It's target debt to total capital ratio is 40%. It has Rs.300 million of debt in terms of market value. The yield to maturity of its bonds (debt) is 10%. The beta of ABC's stock is 1.2. The risk free rate and risk premium are 8% and 9% respectively.

- Calculate FCFF for year 1
- Estimate ABC's WACC
- Estimate the enterprise value of ABC assuming it will generate FCFF (as calculated in (a)) indefinitely.
- Estimate the value of equity.
- If the FCFF is expected to grow at 4%, re-estimate the enterprise value and value of equity.

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.5 a: FCFF

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Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.5 b: Estimation of WACC

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.5 c: Enterprise value

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.5 d: value of equity

NPTEL

Exercises on Estimation of FCFF and Valuation, contd..



Exercise 17.5 e: re-estimation of enterprise value and value of equity

Exercises on Valuation using FCFF

Exercise 17.6

Delta Limited is expected to generate FCFF of Rs.120 million, Rs.150 million and Rs.170 million in the next three years, after which, the FCFF is expected to grow at 5% per annum for ever. If the weighted average cost of capital of Delta is 15%, find the enterprise value.

Exercises on Valuation using FCFF, contd..



Exercise 17.6

CONCLUSION

- Free cash flow to firm can be estimated with help of operating data, like revenue, expenses, etc. Using free cash flow, value of enterprise and value of equity can be found out.
- Estimation of weighted average cost of capital is an important step in the valuation of firm or enterprise.

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Vinod Gupta School of Management
Indian Institute of Technology Kharagpur

LECTURE: 18

TITLE: Valuation in M&A:
Valuation of Synergies – 1

- Synergies
- Operating and Financial Synergies
- Valuing synergies with focus on
 - revenue enhancement synergies and
 - cost reduction synergies



Keywords



- Synergies
- Operating synergy
- Revenue enhancement synergy
- Cost reduction synergy
- Financial synergy
- Cost of capital

Synergies in Mergers and Acquisitions (M&A)

- Synergy is the additional value that is generated by combining two firms, creating opportunities that would not been available to these firms operating independently.
- Very often while announcing M&A deals, company executives mention about the synergies attributable to the particular deal.

Synergies in Mergers and Acquisitions (M&A), contd..

- When the merger of L&T Infotech and Mindtree got approved, The CEO of Mindtree mentioned, "LTIMindtree will benefit from **revenue synergies** on **upselling, cross selling** and stitching services together,".*
- FMCG firm Tata Consumer Products Ltd (TCPL) will work "very closely" with BigBasket, an e-Commerce platform that was recently acquired by the Tata Group, to drive **win-win synergies** in terms of **costs and topline**, according to the company's managing director and CEO, Sunil D'Souza.**



*<https://www.moneycontrol.com/>

**<https://economictimes.indiatimes.com/>

Synergies in Mergers and Acquisitions (M&A), contd..

- It is postulated:

$$V_{AB} > V_A + V_B$$

- Where,
 - V_{AB} = Value of compined company, post M&A
 - V_A = Stand – alone value of A, priro to M&A
 - V_B = Stand – alone value of B, prior to M&A
- The difference can be justified as value of synergy, V_S .

$$V_{AB} = V_A + V_B + V_S$$

Different types of Synergies in the context of (M&A)

- Operating Synergy
 - Revenue enhancement synergy, due to economies of scale and scope, cross-selling opportunities, access to new markets, better pricing power, higher growth, etc.
 - Cost reduction synergy, due to economies of scale and scope, spreading of costs, sharing of resources, reduction of redundancy, etc.
- Financial Synergy:
 - Decrease in borrowing cost
 - Decrease in overall financial risk
 - Better borrowing power in view of bigger size of the combine company (coinsurance effect)

Valuation of Synergies – Different Approaches

- Approach I:
 - Find the value of stand alone companies and sum them up.
 - Find the value of the combined company with synergies incorporated.
 - Difference in the above two values can be termed as value of synergies
- Approach II:
 - Value the synergies like, revenue enhancement synergies, cost reduction synergies and financial synergies separately.
 - Add the above to the sum of independent value of the companies to find the combined company value.

Exercise on Valuation of Synergies

Exercise 18.1

Company A and B are expected to generate free cash flow to firm (FCFF) amounting Rs.120 crore and Rs.130 crore from next year onwards till perpetuity. The expected growth in the FCFF for both A and B are 5%. If the two companies are merged, the combined company is expected to generate Rs.280 crore FCFF from next year onwards and it is expected to grow at 6% till perpetuity. The cost of capital of A and B are 12% and 14 % respectively. The estimated cost of capital of the combined company is 13%. Find the present value of synergy due to merger.

Exercise on Valuation of Synergies, contd..

Exercise 18.1 - Answer

$$V_A(\text{in Rs. Crore}) = \frac{FCFF_1}{K_A - g} = \frac{120}{.12 - .05} = 1,714.29$$

$$V_B(\text{in Rs. Crore}) = \frac{FCFF_1}{K_B - g} = \frac{130}{.14 - .05} = 1,444.44$$

$$V_A + V_B = \text{Rs. } 3,158.73 \text{ crore}$$

$$V_{AB}(\text{in Rs. Crore}) = \frac{FCFF_1}{K_{AB} - g} = \frac{280}{.13 - .06} = 4,000.00$$

$$V_S = V_{AB} - (V_A + V_B) = 4,000 - 3,158.73 = \text{Rs. } 841.27 \text{ Crore}$$

Exercise on Valuation of Operating Synergies – Revenue Enhancement Synergies



Exercise 18.2

Company P and Q are likely to be merged. The management of both the companies have jointly estimated that the merger shall lead to revenue enhancements of Rs.130 million, Rs.140 million and Rs.150 million in year 1, 2 and 3 respectively. There shall be no additional fixed cost to achieve the revenue enhancement. The variable cost to revenue is ~~40%~~60%. There shall be investment of Rs.20 and Rs.10 million. Some of the redundant assets shall be disposed off at Rs.5 million. The free cash flow due to revenue enhancement is expected to grow at 3% per annum till perpetuity. The combined company shall be subject to 25% tax and has a required rate of return of 14%. Find the net present value of revenue enhancement synergies.

Exercise on Valuation of Operating Synergies – Revenue Enhancement Synergies

Exercise 18.2 – Answer (figures are in Rs. Million)

Year:	0	1	2	3
Revenue enhancements due to Synergies		130.00	140.00	150.00
Contribution margin (revenue less variable cost), 40% of revenue		52.00	56.00	60.00
Less: incremental fixed cost		-	-	-
Incremental pre-tax operating income		52.00	56.00	60.00
Tax expense @25%		13.00	14.00	15.00
After-tax cost savings		39.00	42.00	45.00
Less: one time investment	-20.00	-10.00		
Add: Reliaization from disposal of redundant assets	5.00			
Sub-total	-15.00	29.00	42.00	45.00
Terminal value $[(3^{\text{rd}} \text{ year CF} \times (1+g))/(k - g)]$				421.36
Free cash flow + Terminal Value	-15.00	29.00	42.00	466.36
Present value of free cash flow @ 14%	-15.00	25.44	32.32	314.78
Net present value of revenue enhancement synergies	357.54			

Exercise on Valuation of Synergies – Cost Reduction Synergies

Exercise 18.3

Oxford Limited is acquiring Webster Limited and merging it with itself. The merger is expected to lead to pre-tax cost reduction of Rs.70 million, Rs.90 million and Rs.100 million in the first three years, post-merger. The merged company must spend Rs.300 million at the beginning followed 6% of pretax savings to sustain the rate of savings in subsequent years. Because of rationalization of operations, some assets will be sold, thus generating a positive cash flow of Rs.15 million in year 1. The merged company shall be subject to 25% tax rate and has an expected rate of return of 10%. The free cash flow due to cost reduction synergy is expected to grow @ 2% till perpetuity. Find the net present value of cost reduction synergies.

Exercise on Valuation of Synergies – Cost Reduction Synergies, contd..

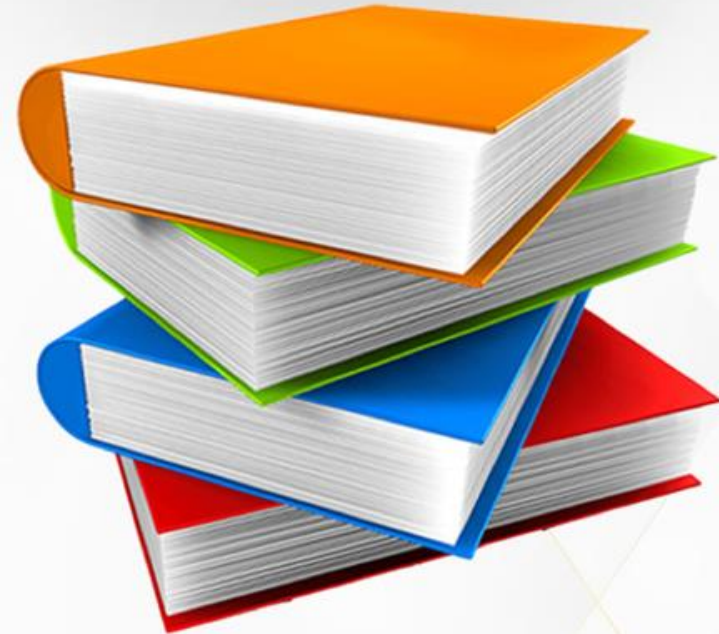
Exercise 18.3 - Answer

in Rs. Million				
Year:	0	1	2	3
Pre-tax Cost savings		70.00	90.00	100.00
Post-tax cost savings [pre-tax figure x (1-.25)]		52.50	67.50	75.00
Less: investment necessary to realize the savings	300	4.20	5.40	6.00
Add: Realization from disposal of assets		15.00		
Sub-total	-300	63.3	62.10	69.00
Terminal value $[(3^{\text{rd}} \text{ year CF} \times (1+g))/(k - g)]$				879.75
Net cash flow	-300	63.3	62.10	948.75
Present value of net cash flow	-300.00	57.55	51.32	712.81
Net present value	521.68			

CONCLUSION

- Synergies are expected to be natural outcome of M&A and companies mention explicitly about it while announcing M&A deals.
- Synergies can take the form of revenue enhancement, cost reduction.
- Financial synergies in terms of lower cost of capital are possible.
- Synergies can be valued using different approaches.
- In the subsequent session, the valuation of financial synergies shall be discussed.

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Thank you





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LECTURE: 19

**TITLE: Valuation in M&A:
Valuation of Synergies – 2**

- Synergies
- Financial Synergies
- Valuation of financial synergies
- Other forms of synergies
- Real options synergies



Keywords



- Synergies
- Financial synergy
- Cost of capital
- Coinsurance effect
- Valuation
- Real option

Synergies in Mergers and Acquisitions (M&A)

- Synergy is the additional value that is generated by combining two firms, creating opportunities that would not been available to these firms operating independently.
- Very often while announcing M&A deals, company executives mention about the synergies attributable to the particular deal.
- Synergies can be broadly classified as:
 - Operating Synergies (covered in Session # 18)
 - Financial Synergies

Financial Synergies in M&A

- M&A can result in financial synergies in terms of reduction in the cost of capital.
 - Coinsurance effect:
 - Asset effect
 - Cash flow effect
 - Reduction in the borrowing cost, i.e. interest rate
 - Reduction in overall risk leading to lower cost of equity
 - Reduction in the weighted average cost of capital (WACC) as a result of the above

Exercise on Valuation of Synergies – Financial Synergies

Exercise 19.1: Alpha and Beta are going to be merged to form AlBe. From the relevant information given below, find the present value of financial synergies.

Particulars	Alpha	Beta	Al-Be
Total capital, pre-merger (Rs. Million)	1,000	1,000	2,000
Weight of debt	25.00%	30.00%	??
Cost of debt - pre-tax	10%	12%	11%
Marginal tax rate	25%	25%	25%
Beta of stock of Company, pre-merger	0.8	0.9	
Risk free rate of return	7%	7%	7%
Equity market risk premium	8%	8%	8%
Expected reduction in the unlevered beta of combine company			0.10
Weight of respective company in terms of total capital	0.5	0.5	

Exercise on Valuation of Synergies – Financial Synergies, contd..

Exercise 19.1 - Answer

Step I: Calculation of pre-merger weighted average cost of capital (WACC) of individual companies:

Particulars	Alpha	Beta
Total capital, pre-merger (Rs. Million)	1,000	1,000
Weight of debt	25.00%	30.00%
Cost of debt - pre-tax	10%	12%
Marginal tax rate	25%	25%
Beta of stock of Company, pre-merger	0.8	0.9
Risk free rate of return	7%	7%
Equity market risk premium	8%	8%
Cost of debt - post tax	7.50%	9.00%
Cost of equity (using CAPM)	13.40%	14.20%
Weighted average cost of capital	11.93%	12.64%

Exercise on Valuation of Synergies – Financial Synergies, contd..



Exercise 19.1 – Answer, contd..

Step II: Calculation of average of WACC of both companies:

Weight of pre-merger capital of Alpha x pre-merger WACC of Alpha +
Weight of pre-merger capital of Beta x pre-merger WACC of Beta =

$$0.5 \times 11.93\% + 0.5 \times 12.64\% = 12.28\%$$

Exercise on Valuation of Synergies – Financial Synergies, contd..



Exercise 19.1 – Answer, contd..

Step III: Calculation of WACC of Combined Company, AlBe:

Cost of debt (post-tax): $11\% \times (1 - 0.25) = 8.25\%$

Weight of debt of the combined company = $(250+300)/2,000 = 27.50\%$

Debt-Equity ratio of combined company: $27.50\% / (1 - 27.50\%) = 72.50\%$

Cost of equity:

Unlevered beta of Alpha: $0.8 / [1 + 25/75 \times (1 - .25)] = 0.64$

Unlevered beta of Beta: $0.9 / [1 + 30/70 \times (1 - .25)] = 0.6811$

Unlevered beta of merged company, AlBe (without adjustment) = $0.5 \times 0.64 + 0.5 \times 0.6811 = 0.6605$

Unlevered beta of merged company, AlBe (with adjustment) = $0.6605 - 0.10 = 0.5605$

Levered beta of AlBe = $0.5605 \times [1 + (0.275/.725) \times (1 - 0.25)] = 0.72005$

$$\beta_u = \frac{\beta_l}{[1 + \frac{D}{E} * (1 - T)]}$$
$$\beta_l = \beta_u [1 + \frac{D}{E} * (1 - T)]$$

Exercise on Valuation of Synergies – Financial Synergies, contd..

Exercise 19.1 – Answer, contd..

Step III: Calculation of WACC of Combined Company, AlBe, contd..:

Particulars	AlBe
Total capital, pre-merger (Rs. Million)	2,000
Weight of debt	27.50%
Cost of debt - pre-tax	11%
Marginal tax rate	25%
Risk free rate of return	7%
Equity market risk premium	8%
Levered beta of combined company	0.72
Cost of equity (using CAPM)	12.76%
Cost of debt - post-tax	8.25%
Weighted average cost of capital	11.52%

Exercise on Valuation of Synergies – Financial Synergies, contd..



Exercise 19.1 – Answer, contd..

Step IV: Calculation of PV of Financial Synergies:

Cost of capital, in absolute rupee: Cos of capital of Alpha + Cost of capital of Beta =

$$11.93\% \times 1,000 + 12.64\% \times 1,000 = 119.30 + 126.40 = \text{Rs.}245.70$$

Cost of capital of merged company, in absolute rupee = $11.52\% \times 2,000$
= Rs.230.40 million

Net impact, annually = Rs.245.70 million – Rs.230.40 million = Rs.15.30 million

PV of financial synergies (using PV of perpetuity formula) =
 $\text{Rs.}15.30 \text{ million} / 0.1152 = \text{Rs.}132.81 \text{ million}$

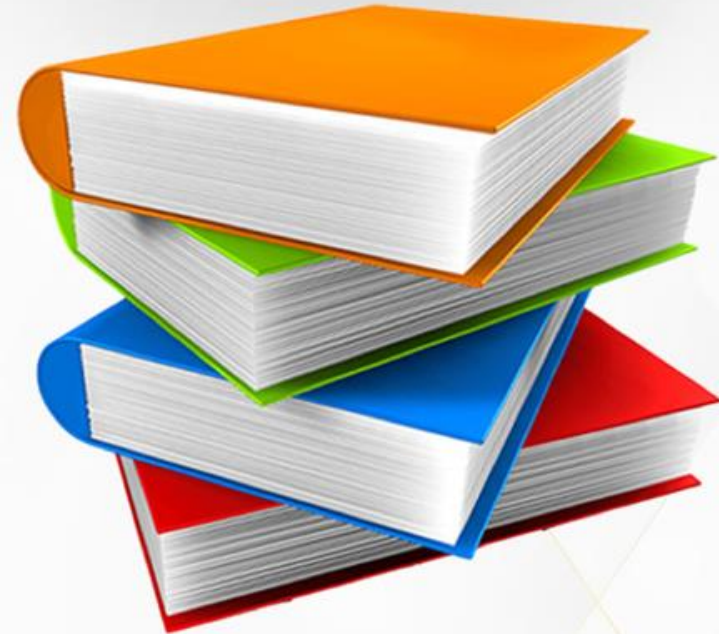
Other forms of Synergies in M&A

- M&A can result in other forms of synergies:
- Asset reduction synergies
- Real option synergies (Bruner, 2004)
 - Growth option synergies
 - Exit option synergies
 - Options to defer
 - Options to switch (in terms of input mix, output mix, processes, etc.)

CONCLUSION

- M&A can lead to financial synergies in terms of reduction in the overall cost of capital of the combined company in comparison to pre-merger period.
- The present value of financial synergies is the present value of impact of reduction in the cost of capital in absolute rupee terms.
- M&A can also lead to real options synergies.

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Thank you





N P T E L O N L I N E C E R T I F I C A T I O N C O U R S E S

MERGERS, ACQUISITIONS AND CORPORATE RESTRUCTURING

Prof. CHANDRA SEKHAR MISHRA

**Vinod Gupta School of Management
Indian Institute of Technology Kharagpur**

LECTURE: 20

**TITLE: Valuation in M&A:
Asset Based Valuation**

- **Assets Based Valuation**
- **Book value approach**
- **Replacement cost approach**
- **Approaches for valuation of intangible assets**

Keywords



- Valuation
- Book value
- Tangible and intangible assets

Asset Based Valuation

Generic Definition: Valuation of a company can be defined as summation of assets held by the company. It is also known as sum of the parts method of valuation. Assets held by the company can be tangible or intangible. Long term or non-current assets

- Tangible assets, like plant and machinery, land, building
- Intangible assets, like, patents, copyrights, franchises,
- Short term or current assets
 - Inventories
 - Trade receivables
 - Cash and cash equivalents
 - Other current assets
- Investments
 - In group companies and subsidiaries
 - Other long term investments

Value of Equity using Asset Based Valuation

- Value of Equity = Value of Assets less value of Liabilities
 - Balance Sheet Equation: Assets = Equity + Liabilities

Different approaches for valuation of assets

- Book value: as per books of accounts of the company
- Market value: valuing the assets as per prevailing market value
- Replacement cost: the amount it would cost to replace the asset at current market price
 - Replacement cost and market value are not same

Exercise on Asset based Valuation

Exercise 20.1

Balance Sheet of Delta Limited as on March 31 20X3

Assets	Book value	Sale or liquidation value (market value)	Equity and Liabilities	Book value	Sale or liquidation value (market value)
Non-current assets			Equity share capital - paid up (1,000 shares of Rs.10 each)	₹ 10,000	N.A.
Fixed Assets, net of accumulated depreciation	₹ 27,000	₹ 31,000	Reserves and Surplus	₹ 20,000	N.A.
Investments	₹ 5,000	₹ 5,400			
Current assets			Non-current liabilities		
Inventories	₹ 1,700	₹ 1,400	Secured Loans	₹ 4,500	₹ 4,500
Receivables	₹ 3,000	₹ 2,700	Unsecured Loans	₹ 1,200	₹ 1,200
Cash	₹ 2,500	₹ 2,500	Current Liabilities	₹ 3,500	₹ 3,500
	₹ 39,200	₹ 43,000		₹ 39,200	N.A.

Required: Find the value of the company and equity using book value and sale or liquidation value

Exercise on Asset based Valuation, contd..



Exercise 20.1 – Answer

Advantages of Asset based Valuation Method

- Simple and direct approach
- Easy to understand
- Suitable in case of liquidation of company
- Favorable for sectors like real estate
- Suitable for companies where income is generated primarily out of assets held by the company – like banks

Limitations of Asset based Valuation Method

- Book value is historical in nature.
- Estimation of market or replacement value is not easy.
- Does not consider the going concern aspect of the company.
- Does not attach importance to company's future earnings.
- Value fetched at the time of actual disposal of asset can be different from the estimated value.
- Does not consider intangible assets of the company that drive the value, since they are not part of the balance sheet.
 - Intangible assets, that are not part of the balance sheet (like, brand, image, reputation) need to be valued separately and added to the value of the company. This is not a simple process.

Intangible Assets

- **Definition of Intangible Assets**

- IndAS 38: An intangible asset is an identifiable non-monetary asset without physical substance.*
- International Glossary of Business Valuation Terms defines Intangible asset as: non-physical assets such as franchises, trademarks, patents, copyrights, goodwill, equities, mineral rights, securities and contracts (as distinguished from physical assets) that grant rights and privileges, and have value for the owner.

- **Intangible Assets and Balance Sheet**

- Recognized in the balance sheet: Trademarks, copyrights, patents, etc.
 - Outside the balance sheet: Brand, Image, Reputation, etc.
- Goodwill is recognized in the Balance Sheet at the time of acquisition of a company on a case to case basis.

*<https://mca.gov.in/Ministry/pdf/INDAS38.pdf>, accessed on 27-Dec-2022

** <https://www.nacva.com/content.asp?contentid=166>, accessed on 27-Dec-2022

Approaches for Valuation of Intangible Assets*

- **Market Approach:** when active market is available for the intangible asset (suitable for software)
- **Cost approach:** The expected amount to be incurred to develop similar intangible asset in its present form adjusting for any depreciation or obsolescence. It is suitable for internally generated intangible assets like technology, software, etc.

* Adapted from: <https://taxguru.in/income-tax/valuation-intangible-assets.html>, accessed on 22 Dec 2022

Approaches for Valuation of Intangible Assets, contd..

- **Income approach:** The present value of expected cash flows or future cost savings due to ownership of the intangible asset. This is adjusted for any future cost and discounting factor.
 - **Relief from Royalty Method (RRM):** The expected savings from royalty payment by owning the intangible asset
 - **Multi-period Excess Earnings Method (MPEEM):** Estimate the cash inflows attributable to the particular intangible asset and find the present value after adjusting for expected expenses. It is useful in case of technology start-ups.
 - **With and Without Method (WWM):** the difference in value of the firm with the intangible asset and without the intangible asset – using discounted cash flows.
 - **Greenfield Method:** Project the cash flows of the firm (like in case of discounted cash flow approach) assuming that the intangible asset is the only asset of the firm or company.

CONCLUSION

- The valuation of company or enterprise can be found out by summing up the value of individual assets.
- Value of equity can be estimated by deducting the value of liabilities from the value of assets.
- Assets can be tangible or intangible
- Asset based valuation might not be suitable for all circumstances.
- In the subsequent session, relative valuation or comparable company approach method of valuation shall be discussed.

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