



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: 21

TITLE: Valuation in M&A:
Relative Valuation – 1

- **Relative Valuation**
- **Comparable Company Approach**
- **Trading vs Transaction Multiples**



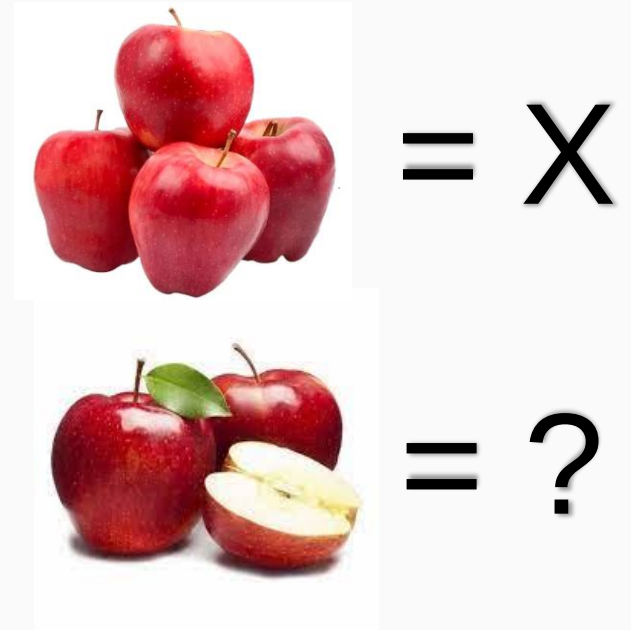
Keywords



- Valuation
- Enterprise Value
- Valuation Multiples
- Price to Earning Multiple
- Price to Book Multiple
- EBITDA Multiple

Relative Valuation

- Generic Definition: Relative valuation is a method of valuation method in which the value of a company is measured by comparing other companies typically with same attributes, like industry and peer-group and by using certain business metrics.
 - The business metrics can be financial or non-financial in nature.
- Relative valuation is also known as comparable company approach.
- Although this approach is simple to understand and use, one has to be careful while using a particular method.



Steps in Relative Valuation Approach

- Identify the target company for which valuation is to be carried out.
- Select the comparable companies
- Collect required financial and non-financial information of comparable companies
- Find the valuation multiple of the comparable companies and average it using mean or median (preferably).
- Adjust the average multiple as above if necessary
- Find the value of the enterprise or equity using the average multiple and relevant metric of the target company.

Selecting Comparable Companies

- While finding the comparable companies, one can keep the following things (not exhaustive) in mind:
 - Industry / sector and sub-sector
 - Products, services and offerings
 - Market for products, customers
 - Size of the company
 - Age and stage of the growth
 - Technology stage
 - Profitability

Relative Valuation Approaches

- **Approaches based on financial metrics**
- Approaches based on non-financial metrics
- Trading vs Transaction Multiples

Equity Valuation – Using Relative Valuation Approach



- Equity Valuation Approaches
 - Price to Earnings (P/E) Multiple
 - P/E to Growth
 - Price to Book (P/B) Multiple
 - Price to Cash Flow Multiple
 - Price to Sales Multiple

Price – Earnings (P/E) Multiple

$$\frac{P}{E} \text{ Ratio or multiple} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

Where,

$$EPS = \frac{\text{Profit after tax less preference dividend if any}}{\text{Number of equity shares outstanding}}$$

$$\text{Value of equity share of a target company} = \text{Average } \frac{P}{E} \text{ Multiple} \times \text{EPS of the target company}$$

Price – Earnings (P/E) Multiple, contd..

Exercise 21.1

Suppose company T has reported Rs.110 million of net profit. The company does not have any preference share and it has 20 million outstanding equity shares. Five companies (A to E) are identified as comparable companies for T. The P/E multiple of the comparable companies are given in the adjacent table. Find the value of the equity share of T.

Earnings per share of T = $\text{Rs.110 million} / 20 \text{ million} = \text{Rs.5.50}$

Value per share of T =

EPS of T x Median P/E =

$\text{Rs.5.50} \times 14.30 = \text{Rs.78.65}$

Using average P/E, value per share of T =

$\text{Rs.5.50} \times 14.18 = \text{Rs.77.99}$

Company	P/E Multiple
A	15.20
B	13.50
C	11.60
D	14.30
E	16.30
Median	14.30
Average	14.18

Price – Earnings (P/E) Multiple, contd..

Exercise 21.1 - extension

Suppose company T has 10 million 10% preference shares of Rs.10 each. Find the value of share using P/E multiple.

Recalculation of value of share of T:

Dividend on preference shares = $10\% \times \text{Rs.}100 \text{ million} = \text{Rs.}10 \text{ million}$

Earnings per share of T = $(\text{Rs.}110 \text{ million} - \text{Rs.}10 \text{ million}) / 20 \text{ million}$
= Rs.5.00

Value per share of T =

EPS of T x Median P/E =

$\text{Rs.}5.00 \times 14.30 = \text{Rs.}70.90$

Using average P/E, value per share of T =

$\text{Rs.}5.00 \times 14.18 = \text{Rs.}71.50$

Company	P/E Multiple
A	15.20
B	13.50
C	11.60
D	14.30
E	16.30
Median	14.30
Average	14.18

Price – Earnings (P/E) Multiple – the concerns

- P/E multiple can be used if the target company is profit making
 - It can not be used for valuing equity of loss making companies.
- P/E multiple does not consider the growth of the company or in its earnings.
 - One can moderate it with growth to find PEG ratio
- Profit can be misleading or manipulated
- P/E ratio does not consider the entire company
 - A company's assets can be financed with equity or equity and debt. A company with more debt can be risky. P/E ratio does not capture this.
- Company with good profit may not have good cash flow

Price to Book or Market to Book Ratio

$$\frac{P}{B} \text{ Ratio or multiple} = \frac{\text{Market price per share}}{\text{Book value per share}}$$

Where,

$$\begin{aligned} & \text{Book value per share} \\ &= \frac{\text{Net worth or (Assets less liabilities)}}{\text{Number of equity shares outstanding}} \end{aligned}$$

$$\begin{aligned} & \text{Value of equity share of a target company} = \\ & \text{Average } \frac{P}{B} \text{ Multiple} \times \text{Book value per share of the target company} \end{aligned}$$

Price to Book or Market to Book Ratio, contd..

Exercise 21.2

Company	P/B Multiple
A	2.50
B	3.20
C	1.80
D	2.70
E	2.20
Average	2.48
Median	2.50
Net worth (Rs. Million)	680.00
Number of equity shares (million)	17.00
Book value per share	₹ 40.00
Price using median P/B	₹ 100.00
Price using mean P/B	₹ 99.20

Other Equity related Multiples

- Price to Cash flow per share multiple
- Price to Sales per share multiple or Market value of equity to Sales multiple
 - Caveat: Sales represent the entire company where as equity represents only the owners of the company.
 - Price to sales can be appropriate for companies using only equity as a source of finance.

CONCLUSION

- The valuation of company or enterprise can be found out by comparing it with other companies and using certain business metrics. It is known as relative valuation or comparable company approach.
- Certain popular relative valuation metrics based on financial parameters are P/E Multiple, EV/EBITDA multiple, EV to Sales.
- Non-financial parameters can also be used in case of relative valuation.
- In case of M&A, the multiples in recent deals can be taken as reference point for valuation of targets.
- Relative valuation methods have their inherent limitations and one should use those carefully
- In the subsequent session, enterprise value multiples and multiples based on non-financial metrics shall be discussed.



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Thank you





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Vinod Gupta School of Management
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LECTURE: 22

TITLE: Valuation in M&A:
Relative Valuation – 2

oncepts covered



- **Relative Valuation**
- **Comparable Company Approach**
- **Trading vs Transaction Multiples**
- **Enterprise value multiples**



Keywords



- Valuation
- Enterprise Value
- Valuation Multiples
- EBITDA Multiple
- EBITDAR Multiple
- Enterprise value to Sales multiple
- Enterprise value to non-financial metrics

Relative Valuation – A Recapitulation, contd..

- Generic Definition: Relative valuation is a method of valuation method in which the value of a company is measured by comparing other companies typically with same attributes, like industry and peer-group and by using certain business metrics.
 - The business metrics can be financial or non-financial in nature.
- Relative valuation is also known as comparable company approach.
- Although this approach is simple to understand and use, one has to be careful while using a particular method.



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Steps in Relative Valuation Approach – A recapitulation

- Identify the target company for which valuation is to be carried out.
- Select the comparable companies
- Collect required financial and non-financial information of comparable companies
- Find the valuation multiple of the comparable companies and average it using mean or median (preferably).
- Adjust the average multiple as above if necessary
- Find the value of the enterprise or equity using the average multiple and relevant metric of the target company.
- Selection of comparable companies is a challenging task.

Relative Valuation Approaches

- **Approaches based on financial metrics**
- Approaches based on non-financial metrics
- Trading vs Transaction Multiples

Enterprise Valuation – Using Relative Valuation Approach (Financial Metrics)

- Enterprise Valuation Approaches
 - Enterprise Value to Sales Multiple
 - Enterprise Value to EBIT (earnings before interest and tax) Multiple
 - Enterprise Value to EBITDA (Earnings before interest, tax, depreciation and amortization) Multiple
 - Enterprise value to EBITDAR (Earnings before interest, taxes, depreciation, amortization, and rental costs)

Enterprise Value

Enterprise Value = Market value of Equity + Market value of Preference Capital + Market value of Debt less cash and cash equivalents

Certain methods suggest **NOT** to remove cash and cash equivalents from the debt while finding out enterprise value.

Exercise: 22.1: Estimation of enterprise value

Type of capital	Number	Current market Price	Market value
Equity shares	1,000	₹ 75	₹75,000
Preference shares	200	₹ 110	₹22,000
10% Debentures	80	₹ 1,200	₹96,000
		Total	₹1,93,000
Cash and cash equivalents			₹5,000
Enterprise value			₹1,88,000

Enterprise Value Multiples

- Enterprise Value to Sales Multiple
 - Value of enterprise = EV to sales multiple x Sales of the target company
- Enterprise Value to EBIT (earnings before interest and tax) Multiple
 - Value of enterprise = EV to EBIT multiple x EBIT of the target company

Enterprise Value Multiples, contd..

- Enterprise Value to EBITDA Multiple
 - Value of enterprise = EV to EBITDA multiple x Sales of the target company
- EBITDA reflects the core earnings of the company.
- EBITDA is not affected by the financing structure of the company, since it is profit or earnings before interest.

Enterprise Value Multiples, contd..

Exercise 22.2

Company M has EBITDA of Rs.500 million. It has a debt of Rs.1,200 million. The comparable companies' EBITDA multiple are given in the adjacent table. It has a cash of Rs.40 million. If the company has 20 million equity shares, what is the enterprise value and value of equity share?

Company	EV/EBITDA Multiple
P	4.5
Q	5.2
R	6.4
S	4.8
T	5.4

Average EBITDA Multiple = 5.26

Enterprise value = Rs.500 million $\times$ 5.26 = Rs.2,630 million

Value of equity = Rs.(2,630 – 1,200 + 40) million = Rs.1,470 million

Value of equity share = Rs.1,470 million / 20 million = Rs.73.50

Other extensions of EBITDA Multiple

- Enterprise value to EBITDAR (Earnings before interest, taxes, depreciation, amortization, and rental costs)
 - Companies may choose to own or rent the assets (say in hospitality sector). In such cases, this multiple is useful
- EBITDARM (Earnings before interest, taxes, depreciation, amortization, rental costs and management fees)
 - Ideal for companies having substantial management fees (owner-manager)
 - Used by private equity players while valuing Start-ups or privately held companies where owners operate as managers.

Transaction Multiples

- Instead of considering trading multiples, one can consider the recent M&A deals and find the multiples to value the target. This factors control premium paid as part of M&A deal.
- If using trading multiple, one should factor control premium separately for the purpose of M&A valuation.

Transaction Multiples, contd..

Exercise 22.3

Company X, operating in retail sector has identified an unlisted Company Y for acquisition. It will like to offer in cash for the shares held in Company Y. The M&A team of X has also found out five recent comparable deals in the retail sector. Company Y has reported Rs.300 million in terms of EBITDA in the just concluded year. Find the enterprise value. If the company has Rs.250 million outstanding debt, Rs.30 million in cash and 10 million equity shares. Find the value per share of Company Y.

Deals	EV/EBITDA Multiple
Alpha	4.3
Beta	5.2
Gamma	4.8
Delta	6.3
Theta	5.7

Transaction Multiples, contd..

Exercise 22.3, contd..

Average EBITDA Multiple = 5.52

Enterprise value = Rs.300 million X 5.52 = Rs.1,656 million

Value of equity = Rs.(1,656 – 250 + 30) million = Rs.1,436 million

Value of equity share = Rs.1,436 million / 10 million = Rs.143.60

Deals	EV/EBITDA Multiple
Alpha	4.3
Beta	5.2
Gamma	4.8
Delta	6.3
Theta	5.7

Transaction Multiples and control premium

Exercise 22.4

Company P, operating in FMCG sector has identified an unlisted Company Q for acquisition. It will like to offer in cash for the shares held in Company Q. The M&A team of P has also found out five comparable companies in the FMCG sector. The trading P/E multiples of those five companies are provided in the adjacent table. Q has reported Rs.8.20 as earnings per share. Company P is willing to offer 20% as control premium. Find the value per share to be offered by P to Q's shareholders.

Deals	P/E Multiple
A	14
B	15
C	16
D	17
E	18

Average P/E multiple = 16 times

Value per share = Rs.8.20 x 16 = Rs.131.20

Value per share with control premium of 20% = Rs.131.20 x (1.20) = Rs.157.44

Enterprise Value Multiples using non-financial metrics

Enterprise value can be related (or driven by) non-financial metrics – unique to a company or industry or both. Hence companies can be valued using multiples based on non-financial metrics. Some examples are:

Retail Sector	Floor space
Power generation	Installed Megawatt power capacity
Specific manufacturing sector (e.g., steel, cement, etc.)	Metric ton capacity
Subscriber based services like ISP, Telecom, OTT Platforms	Number of subscribers
Intellectual property based companies	Number of patents
R&D Company	Number of scientists
Hospitality like hotels	Number of rooms
Hospitals	Number of beds
Oil and Gas	Oil and gas Refining capacity

Valuation Multiple =

$$\frac{\text{Value Measure}}{\text{Value Driver}}$$

CONCLUSION

- The valuation of company or enterprise can be found out by comparing it with other companies and using certain business metrics. It is known as relative valuation or comparable company approach.
- Enterprise value can be found out by using multiple financial metrics.
- Non-financial parameters can also be used in case of relative valuation.
- In case of M&A transaction multiples are prevalent.



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1. Bruner, R. F.(2004). *Applied Mergers and Acquisitions*,. John Wiley & Sons.
2. Damodaran, A. (2007). *Corporate Finance, Theory and Practice*, John Wiley & Sons.
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LECTURE: 23

TITLE: Valuation of Start-Ups and
Other Special Cases in Valuation - 1

- **Start-ups as Acquisition Target**
- **Start up stage and financing cycle**
- **Valuation of Start-ups and new ventures**
- **Challenges in valuing a start up**
- **Pre-Money and Post-Money Value**
- **Scorecard approach**



Keywords



- Start-ups
- Start-up financing cycle
- Valuation
- Pre-Money Value
- Post-Money Value
- Valuation Multiples
- Scorecard approach

What is a Start-up?

- Oxford Dictionary: A newly established business
- As per the Notification (February 2019) of the Government of India*, a Start-up must meet the following criteria:
- **Company Age:** Period of existence and operations should not be exceeding 10 years from the Date of Incorporation
- **Company Type:** Incorporated as a Private Limited Company, a Registered Partnership Firm or a Limited Liability Partnership
- **Annual Turnover:** Should have an annual turnover not exceeding Rs. 100 crore for any of the financial years since its Incorporation
- **Original Entity:** Entity should not have been formed by splitting up or reconstructing an already existing business
- **Innovative & Scalable:** Should work towards development or improvement of a product, process or service and/or have scalable business model with high potential for creation of wealth & employment

*Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India; <https://www.startupindia.gov.in/content/sih/en/startup-scheme.html>, accessed on 17-Jan-2023

Advantages of acquiring a Start-Up

- Agile and adaptive
- Small size team or management
- Less bureaucracy
- Focused
- New products and/ or process
- Niche segment or market
- Low gestation period
- Acquisition of talents
- Acquisition of intellectual properties (like patents)

Start-up Acquisitions in India

- 240 M&A deals took place in Indian startup ecosystem in 2022 compared to 210 deals in 2021.*
- Start-ups acquired by select Indian conglomerates:
 - Tata Group
 - Big Basket (Online grocery super market; founded in 2011, acquired in 2021)
 - 1mg (Online medicine market; founded in 2015, acquired in 2021)
 - Reliance Group (Select acquisitions)
 - Netmeds (Online medicine market; founded in 2015, acquired in 2020)
 - Fynd (Online fashion segment; founded in 2013, acquired in 2020)
 - Saavn (Music; founded in 2007, acquired in 2018)
 - Grab (Logistics; founded in 2013, acquired during 2019 – 2021)
 - Urban Ladder (online furniture retailer, founded in 2012, acquired in 2020)

**<https://inc42.com/features/decoding-the-startup-ma-trends-of-2022-and-whats-next-for-indian-startups/>, accessed on 17 Jan 2023*

Startup Financing Cycle

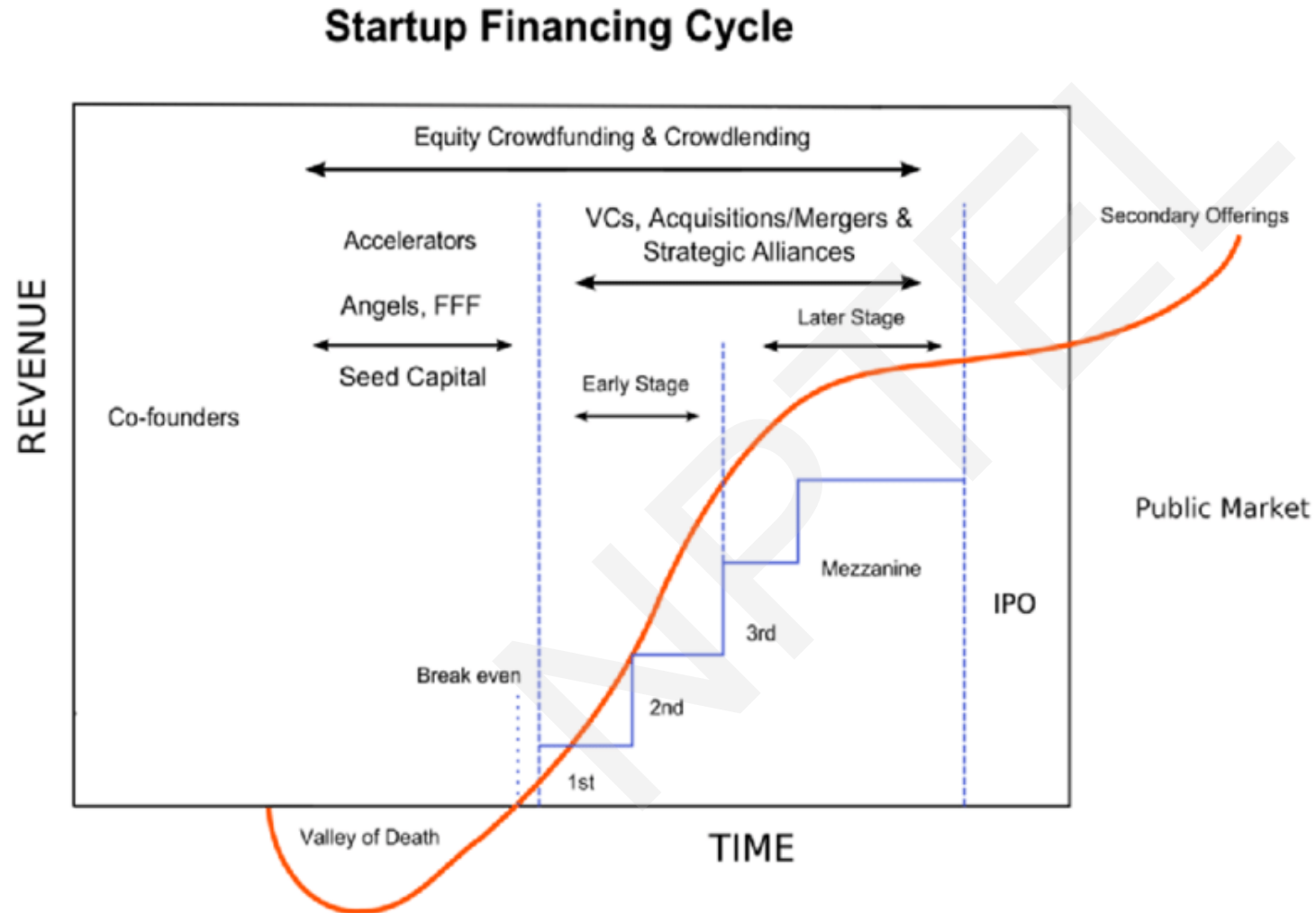


Image Source: Cardullo (1999)

Startup Financing Stages*

- Pre-seed capital
- Seed capital and Series Funding
 - Series or Class A (Equity; Preference share;)
 - Series or Class B (Equity)
 - Series or Class C (Equity)
 - Series of Class D (Equity)
 - Series or Class E (Equity and / or Mezzanine finance (Convertible debts))
- M&A as an exit option or Initial Public Offering

*Adapted from Kapil and Kapil (2017)

Challenges in valuing a Start-up

- Very young company thus lacking history
- Very unique business ideas/ products/ service offerings
- Risk involved thus reducing the chance of survival
- Stability and stage of the start-up (idea/ seed capital/ early growth/ expansion/ sustainable growth)
- Very less revenue, negative earnings or very less profit
- Negative operating cash flow
- Inadequacy of financial statements
- Lack of comparable companies

Valuation of Start-ups – Pre Money and Post Money Valuation

- Valuation of the start-up changes with every round financing
- Pre-money valuation = Valuation before the financing event
- Post-money valuation = Valuation after the financing event

$$\text{Post – money Valuation} = \frac{A}{X\%}$$

$$\text{Pre – money Valuation} = \frac{A}{X\%} - A$$

- Where, A = amount invested by an investor in a particular financing round
- X% = percentage ownership offered to the investor

Valuation of Start-ups – Alternative Approaches

- Pre-Money valuation or Exit Valuation without any adjustment
 - Discounted cash flow approach
 - Comparable company approach
 - Recent transactions or deal approach
- Adjustments to the pre-money valuation
 - Dave Berkus Method of Adjustment
 - Cayenne or Scorecard Method
 - Risk factor summation method



Dave Berkus Method of Adjustment*

- Calculate the pre-money value and adjust it upward for
 - Good or sound business idea
 - Availability of prototype or low technology risk
 - Good managerial potential (Experienced track record of management)
 - Strategic relationships with good business network
 - Product roll out with low commercial success risk

* Adapted from: Berkus, D. (2009)



Cayenne or Scorecard Method*

- The start-up company is compared with similar start-up ventures (with similar stage of life cycle) where pre-money valuation is available
- The pre-money value for respective start-up is adjusted upward or downward by comparing it with the target start-up's stage (this is subjective in nature)
- The median of the adjusted value as above is considered as the pre-money value of the start-up

(In Rs. Million)			
Comparable Deals	Pre-Money Valuation	Adjustment Factor	Adjusted Pre-Money Valuation
Deal 1	14	1.2	16.8
Deal 2	16	0.8	12.8
Deal 3	12	0.6	7.2
Deal 4	18	1.0	18.0
Deal 5	20	0.5	10.0
Median			12.8

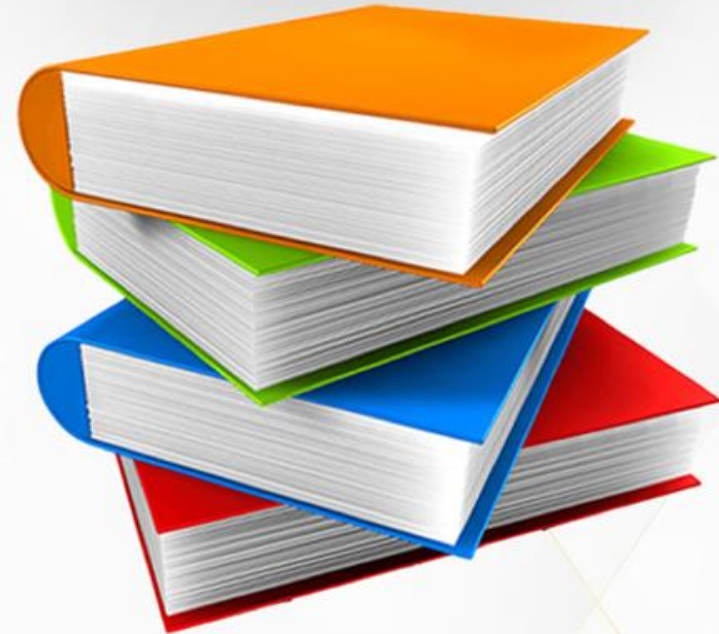
*Adapted from Kapil and Kapil (2017)



CONCLUSION

- Start-up acquisition is a prominent phenomena in corporate world.
- Start-up valuation is not same as a the valuation of a stable company.
- Different adjustments are done while valuing a start-up based on the stage of the start up and risks involved in the start-up compared with similar start-ups.

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LECTURE: 24

TITLE: Valuation of Start-Ups and
Other Special Cases - 2

- Valuation of Start-ups and new ventures
- Valuation of Start-up by venture capital firms
- Pre Money and Post Money Valuation
- Scorecard approach
- Estimation of cost of capital for start-ups or new ventures

Keywords



- Start-ups
- Valuation
- Valuation Multiples
- Scorecard approach
- Cost of capital for start-ups

Valuation of Start-ups – Alternative Approaches[#]

- Pre-Money valuation or Exit Valuation without any adjustment
 - Discounted cash flow approach
 - Comparable company approach
 - Recent transactions or deal approach
- Adjustments to the pre-money valuation
 - Dave Berkus Method of Adjustment
 - Cayenne or Scorecard Method
 - Risk factor summation method

[#] This is a continuation of session no 23.

^{*}<https://inc42.com/features/decoding-the-startup-ma-trends-of-2022-and-whats-next-for-indian-startups/>, accessed on 17 Jan 2023

Risk Factor Summation Method*

Steps:

1. The start-up company is valued compared with similar start-up ventures (with similar stage of life cycle) where pre-money valuation is available.
2. 12 different risk factors with respect to the start up are assigned score ranging from -2 to +2. The scores are summed up
3. The summed up score is multiplied with 0.25 million dollar
4. Value of start-up = Step 1 + Step 3

12 Different Types of Risk	
Management	Competition risk
Stage of the business	Technology risk
Legislation/Political risk	Litigation risk
Manufacturing risk	International risk
Sales and marketing risk	Reputation risk
Funding/capital raising risk	Potential lucrative exit

*Suggested by The Ohio TechAngels, as cited in Payne, B. (2011)

Venture Capital Approach for Pre-Money valuation of Start-Ups or new ventures**

- Fix the year (N) when venture capitalist is likely to exit from the venture in the near future, but not very far. This is also known as forecast horizon.
- Estimate the expected earnings or revenues (in case the venture is not likely to earn profit) for the year of expected exit
- Assess the equity value or enterprise value at the end of forecast horizon by using multiple taken from publicly traded firms in similar industry
 - $\text{Equity value}_N = \text{Expected earnings}_N \times \text{Forecasted PE}$
 - $\text{Enterprise value}_N = \text{Expected revenue}_N \times \text{Forecasted EV/Sales}$
- Discount the above value with a discount rate which is typically very high compared to that applicable in case of an established business.

** Adapted from Damodaran, A. (2009)

Venture Capital Approach for Pre-Money valuation of Start-Ups or new ventures – Example – 24.1

- Company X, a start-up is engaged in the production of batteries for electric vehicles. It has already developed the product, but is yet to commercialize. In the just concluded year, it has incurred an operating expense of Rs.2 crore, thus incurring a loss of Rs.2 crore since it does not have any revenue. Company X does not have any debt.
- The founder of Company X has approached Venture capital firm V for a funding of Rs.10 crore in terms of equity to meet the expenses in the next three year and the founder believes that the firm shall have a revenue of Rs.60 crore by fourth year.
- The venture capital firm has identified three comparable companies and the enterprise value to sales of these companies are given in the adjacent table.
- Since Company X is yet to make any revenue, Company V will like to assign a higher target rate or return, say 40%.
- Required: Pre-money and post-money value of X, percentage stake of V in X after capital infusion.

Company	EV to Sales Multiple
A	3.8
B	3.3
C	3.4
Average	3.5

Venture Capital Approach for Pre-Money valuation of Start-Ups or new ventures – Example 24.1, contd..

- Company X, does not have any debt, thus the value of equity will be the same as enterprise value
- Using enterprise value to sales multiple of 3.4 times,
 - Estimated enterprise value of X at the end of 4th year = Rs.60 crore x 3.5 = Rs.210 crore
 - The present value of EV =
$$\frac{\text{Rs. 210 crore}}{(1.40)^4} = \text{Rs. 54.66 crore}$$
 - Thus the pre-money value of X = Rs.54.66 crore
 - Post money value = Pre-money value + capital infusion by V = Rs.54.66 crore + Rs.10 Crore = **Rs.65.66 crore**
 - Percentage stake of V in X after capital infusion = 10 / 65.66 = **15.46%**

Estimation of Discounting Rates for Start-up Firms

- The rates for discounting the future cash flows is also known as weighted average cost of capital (WACC). Assuming a company has debt and equity as source of finance, WACC is the weighted average of cost of debt and cost of equity.
- The cost of debt might not be applicable for the start-ups that has no debt. In such case, cost of equity is considered as the WACC.
- If the start-up firm approaches for debt, the lender can charge an interest rate relatively higher than the interest rate charged to the established firms in the same industry. In such case, the interest rate charged by the lender shall be the cost of debt.
- For estimation of cost of equity, CAPM is popularly used.

Estimation of Discounting Rates for Start-up Firms, contd..

- As per CAPM, cost of equity:

$$K_e = R_f + \beta * (R_m - R_f)$$

- Since β is not available for the start-up being an unlisted company, an alternate approach is required to get a proxy β , as given below***
- Find the unlevered beta of the sector based on the listed firms:

$$\frac{\text{Average } \beta \text{ of publicly trade firms}}{1 + (1 - \text{Tax rate} * \text{Average Debt} - \text{Equity Ratio for sector})}$$

- The above β can be considered as the market beta for the start-up in the absence of any debt. If the debt is present, it can be readjusted to find out the levered beta (as discussed in cost of capital session)

** *Adapted from Damodaran, A. (2009)

Estimation of Discounting Rates for Start-up Firms, contd..

- Unlike the market which is diversified, the start-up firm is not diversified. Thus a scaled-up version of the above beta can be found for the start-up firm, which is known as total beta

$$\text{Total } \beta = \frac{\text{Market } \beta}{\text{Correlation with Market}}$$

- The cost of capital of the start-up can be found by using the above β in CAPM

** *Adapted from Damodaran, A. (2009)

Estimation of Discounting Rates for Start-up Firms, contd..



Example 24.2

- Target Company, P, a start-up in the e-vehicle sector, is financed only by equity from the existing promoters, i.e. it has no debt, thus an unlevered company.
- The average beta of the listed public companies in the e-vehicle sector is 1.30. The average debt-equity ratio and tax rate of such companies are respectively, 0.15 and 0.25.
- The average correlation of the e-vehicle sector with the market is 0.30
- The risk free rate and market rate of return are respectively 8% and 17%.

Estimation of Discounting Rates for Start-up Firms, contd..

Example 24.2, contd..

Unlevered β of E – Vehicle industry =

$$\frac{1.30}{1 + 0.15 * (1 - 0.25)} = 1.1685$$

$$Total \beta = \frac{1.1685}{0.3} = 3.8951 \cong 3.90$$

Cost of Equity for Company P using CAPM:

$$K_e = R_f + \beta * (R_m - R_f) = 8\% + 3.90 * (17\% - 8\%) = 43.06\%$$

Since the company is entirely financed by equity, the WACC of the company is also 43.06%

Estimation of Discounting Rates for Start-up Firms, contd..

Example 24.3

Let us assume that company P (as in Example 24.2) is also financed by debt carrying 18% coupon and its debt-equity ratio is 0.10:1. It is subject to 20% tax rate. Required: weighted average cost of capital of P.

As found earlier,

$$Total \beta \cong 3.90$$

$$Levered \beta = 3.90 * [1 + 0.10 * (1 - 0.20)] = 4.21$$

$$K_e = R_f + \beta * (R_m - R_f) = 8\% + 4.21 * (17\% - 8\%) = 45.86\%$$

Debt-Equity ratio = 0.10:1; hence weight of debt = 9.09% and weight of equity is 90.91%

$$WACC = 9.09\% * 18\% * (1 - 0.20) + 90.91\% * 45.86\% = 43.33\%$$

Estimation of Discounting Rates for Start-up Firms, contd..



- At later stage, when the start-up approaches a venture capital, the venture capital can re-estimate the total beta depending upon its diversified portfolio and in such case the correlation between its portfolio and the market is likely to be higher. This will lead to lower total beta and lower cost of equity.
- Thus, as the start-up firm continues, the risk is likely to be lower, thus reducing its cost of capital compared to that at the initial stage.

CONCLUSION

- Start-up valuation needs different treatment compared to standard company valuation
- Relative valuation is one of the popular method for start-up valuation.
- The estimation cost of capital (i.e. discounting factor) for a start-up or new venture need different adjustments.

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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: 25

TITLE: Valuation of Start-Ups and
Other Special Cases - 3

- Discount for Illiquidity
- Control Premium
- Estimation of high-growth duration and stable growth rate in free cash flow based valuation
- Accounting anomalies and adjustments in case of target's financial statements.



Keywords



- Liquidity Risk
- Liquidity/ Illiquidity Discount
- Control Premium
- Minority Discount
- Growth Horizon
- Stable Growth Rate
- Accounting Anomalies

Liquidity Discount

- Liquidity is being able to sell
 - Liquidity is the ease with which an investor can sell the assets without a significant loss in the value.
 - It is also known as the ability to exit quickly.
- Investor may have to offer a discount while selling a less liquid asset compared to a comparable marketable asset.
- Liquidity discount can be affected by factors like, firm size, liquidity in the balance sheet, returns, growth in cash-flow, financial leverage, etc.

Control Premium and Minority Discount

- Control is the ability to direct the activities of a firm like:
 - Select Management
 - Setting policies and take strategic decisions
 - Acquire or divest
 - Incur discretionary expenses
- A buyer of controlling stake in a company shall be willing to pay a premium for the control.
- A minority discount is the reduction in the value of the investment due to very less control over the firm's operations by the minority shareholders.

Dealing with Liquidity Discount and Control Premium in Valuation

- Base value for a target in the context of M&A: Value as a stand-alone company + Value of Synergies. This can be defined as base value
- Factoring liquidity discount (LD) and control premium (CP)
 - $V_{\text{Max}} = \text{Base Value} \times (1 + \text{CP}\%) \times (1 - \text{LD}\%)$
- Both CP% and LD% are subjective in nature and vary within a wide range. Besides past data with respect to M&A transactions, experts' opinion are desirable.

Dealing with Liquidity Discount and Control Premium in Valuation - Example

Example 25.1

Alpha, a privately held company is selected as a target by Gamma after search and due diligence. The stand-alone value of equity using an appropriate method of valuation is Rs.220 crore. The value synergies attributable to this acquisition is estimated at Rs.30 crore. Gamma intends to acquire 51% stake in Alpha. The % premium for control is estimated at 30%.

- a. Suppose there is no liquidity problem, find the value of controlling block and minority block.
- b. Suppose the shares are not liquid, thus % discount attributed for the liquidity problem is 20%, find the value of controlling block and minority block.
- c. If the shareholding of Alpha is dispersed and of going to be acquired only for investment purpose, what is the value of minority block? [Hint: control premium is not applicable in this case.]

Dealing with Liquidity Discount and Control Premium in Valuation – Example, contd..

Example 25.1 (Figures are in Rs. Crore unless mentioned otherwise)			
Particulars	a	b	c
Stand-alone value	220	220	220
Value of synergies	30	30	30
Percentage stake to be acquired	51%	51%	N.A.
Control premium	30%	30%	N.A.
Liquidity discount	0%	20%	20%
Base value	250.00	250.00	250.00
Value, adjusted for illiquidity	250.00	200.00	200.00
Value of controlling block	165.75	132.60	N.A.
Value of minority block	84.25	67.40	200.00
Value of equity adjusted for control premium and illiquidity	250.00	200.00	200.00

High growth duration and stable growth rate

- In case of free cash flow based valuation, the future free cash flows are estimated for a certain number of years. Common problems faced here:
 - Determination of high growth period: it is subjective and depends on the industry and the position of the target in the industry. If the target is growing at a very high growth rate in comparison to the industry and it has less market share, the growth horizon can be longer. Although it is a standard practice to consider 5 year period as high growth period, it can be extended up to 10 years.
 - Determination of stable growth rate: the stable growth rate is likely to be lower than or equal to the growth rate of the industry. In the long run the growth rate of a company is expected to be lower than the GDP growth rate.

Readjusting income statement - Example

Example 25.2:

- Sigma, a privately held company is selected as a target by Delta after search and due diligence. Sigma's latest year's income statement extract is given in the adjacent table (figures in Rs. million).
- Sigma is managed by the founders who do not claim any salary from the company. Operating expenses include Rs.30 million salaries paid to other staffs. However, to manage a company like Sigma, the estimated salary for the top management is likely to be Rs.20 million.
- Sigma is subject to 25% income tax rate.
- Required: net operating profit of Sigma for the latest year.

Sigma	Rs. Million
Revenue from operations	200
Income from investments	10
Operating expenses	130
Profit before interest and tax	80

Readjusting income statement – Example, contd..

Example 25.2, contd..

- Income from investments is not considered since it is not an operating income. The investments of the company if any shall be valued separately. Similarly if there is any non-recurring expenses, the same should not be considered while finding out NOPAT.
- The operating expenses is revised upward with notional salary for top management (Rs.20 million).
- The calculations are given in the adjacent table.

Sigma	Rs. Million
Revenue from operations	200.00
Operating expenses (130 + 20)	150.00
Operating profit before tax	50.00
Net operating profit after tax (Tax @ 25%)	37.50

A caveat:

In certain cases, top management might be drawing higher salaries (making it part of operating expenses) compared to top management of peer group companies. In such cases, the salaries expense can be revised downward while finding the operating expenses.

Accounting Anomalies in Target's Financial Statements

- In spite of robust accounting policies and regulations, we come across accounting anomalies and manipulations by different companies.
- If required, besides removing non-recurring items, the historical statements can be restated by removing doubtful accounting practices, provided the target is otherwise attractive. Some signs of accounting anomalies, also known as red flags:
 - Revenue recognition policy not in sync with GAAP (generally accepted accounting principles) industry practice Source of revenue includes sales to related parties
 - Barter sales
 - Increase in Non-recurring gains as % of total income
 - Growth in trade receivables is considerably higher than growth in sales

Accounting Anomalies in Target's Financial Statements, contd..

- Some signs of accounting anomalies, contd...:
 - Decreasing % of provision of bad debt in relation to revenue
 - Misclassification of revenue expenditure as capital expenditure and vice-versa
 - Wide gap between net income from operations and cash flow from operations
 - Unexpected write-offs of assets
 - Higher growth in inventory in relation to growth in sales
 - Frequent change in accounting policies
 - Change in statutory auditor without proper justification
 - Qualified audit report by the statutory auditor

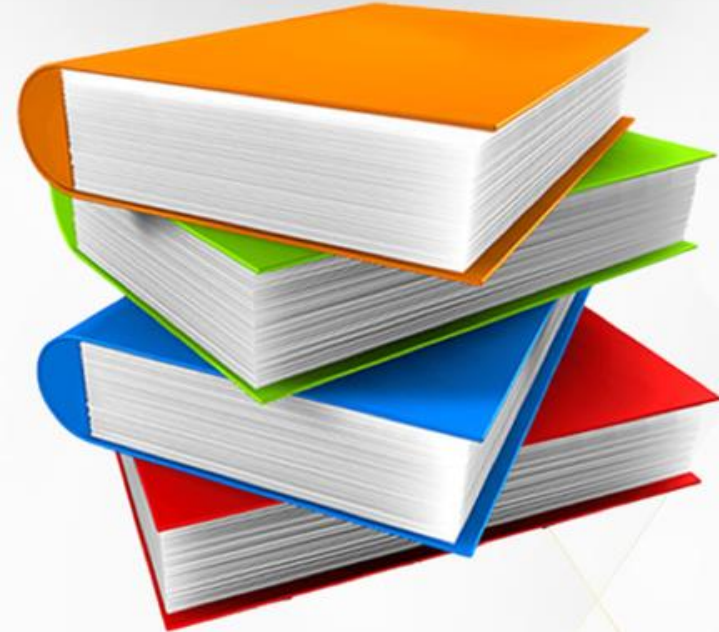
CONCLUSION

- In case of valuation of privately held companies, it should be adjusted for control premium and liquidity
- There are no standard rules for estimating the growth horizon and stable growth rate, as applicable in case of free cash flow based valuation. Hence these need to be estimated with careful consideration
- Readjustments of financial statements are necessary in case of non-standard accounting policies followed by the target company.
- Acquiring company should look for accounting anomalies and manipulation in the financial statements of the target and if required, restate the historical financial statements before doing valuation.

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Thank you

