

Business Valuations

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valuations

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- Basis of business valuations

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- Income (earning) based models
- cash flow based models
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- EVA
- EMVA

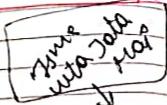
Part IV
Other topics.

- valuation of digital platforms
- valuation of structured companies
- valuation of start-ups

Part 1 Introduction to Business Valuations

Meaning of Business Valuations

It is a process of determining the value of business for various purposes like merger & Acquisition, sale of business, strategic decision making etc.



(1) value of firm (enterprise value or value of business)

$$\text{value of firm} = \text{value of equity} + \text{value of debt} (-) \text{ surplus funds}$$

(these are various methods to calculate value of equity)

Note:- If there is Long term debt but cost of capital is not given in question, then calculate CAPM as follows:-

$$WACC = R_f + \beta(R_m - R_f)$$

Here β_A = Assets beta

④ In general we do not apply CAPM formula to calculate WACC since WACC will not be same from

Business Valuations

Basis of Business Valuations

(2) value of equity

$$\text{value of equity} = \text{value of firm} - \text{value of debt} + \text{surplus funds (cash \& cash equivalents)}$$

(these are various methods to calculate value of firm)

(3) value of equity per share

$$\text{value of equity} / \text{No. of equity shares}$$

(5) Cost of capital of company (WACC)

$$k_0 = k_e \times W_e + k_d \times W_d$$

If there is no debt or surplus funds (cash & cash eq.) then

$$\text{Value of firm} = \text{value of equity}$$

Debt (k_d) is not given then use WACC using

$$k_e = \text{cost of equity (CAPM)}$$

$$k_d = \text{post tax cost of debt} = \text{Interest rate on Debt} (1 - \text{tax})$$

$$W_e \Rightarrow \text{weight of eq} = \frac{E}{E+D}$$

$$W_d \Rightarrow \text{weight of debt} = \frac{D}{E+D}$$

$$E = \text{Eq. cap} + \text{Reserve \& surplus}$$

int. measured on Book

Part II Approaches

(1) Market Based models.

↓

(1) Market-price method

value of eq (VOC) =

MPSX No of eq share

P/E ratio method

value of eq (per share) =

P/E ratio x EPS

VOC (Total) =

P/E Ratio x EPSH.

(2) Assets based models.

↓

(1) Net Assets value method (NAV method)

value of equity =

Net Assets at BV

Eq sharecap x xx

(2) Realistic surplus x xx

(3) Cont-liab (xxx)

if any, VOC = xxx

(2) Net Realistic value method (liquidation value method)

VOC = Net Assets at Realizable value

Net assets at book value + extra amt-realizing

from an assets than its BV

(3) Less amt-realizing from an assets than its BV

(3) Income (earning) Based models.

↓

(1) Dividend growth model

VOC = $\frac{D_1}{r - g}$

Here $D_1 = D_0(1+g)$

g = growth rate after merger

Ke → cost of eq.

1st priority (APM)

2nd priority (APM)

Rt + B(AMAT)

of valuation.

(1) DGM

(2) ECM P/E

(3) P/E

(4) Cash flow

(5) P/E

(6) P/E

(7) P/E

(8) P/E

(9) P/E

(10) P/E

(11) P/E

(12) P/E

(13) P/E

(14) P/E

(15) P/E

(16) P/E

(17) P/E

(18) P/E

(19) P/E

(20) P/E

(21) P/E

Relative value

(1) Relative value based model

↓

(1) P/E

(2) P/E

(3) P/E

(4) P/E

(5) P/E

(6) P/E

(7) P/E

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Relative value based model

↓

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Relative value based model

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Relative value based model

↓

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Relative value based model

↓

(1) P/E

(2) P/E

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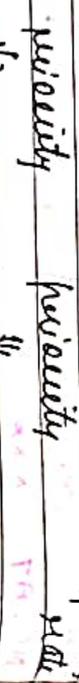
(17) P/E

(18) P/E

Income earning based model.

Q21 Earning Capitalisation method. Value of business (or of the co) is calculated using following steps.

- Step 1 calculate E.M.P. (x xx)
- Step 2 Capitalisation rate (x xx)
- Step 3 Value of Business (x xx)
- (+) but not included xxx
- (-) but not included xxx
- (-) Taxes (x xx)
- Final E.M.P. (x xx)



1st priority
2nd priority
3rd priority

quickly given in

Step 1
Share earning value of company (if asked in other)

= Value of business as calculated in steps No of sq shown.

APCF method

Step 1

calculate APCF

$$\text{Perpetual After Tax (PAT)} \quad \times \frac{1}{k_e}$$

$$= \text{Earnings (before Dep)} \quad (\times \frac{1}{k_e})$$

$$\times (1 - \text{debt ratio})$$

(+) decrease (increase) in WC $\times (1 - \text{debt ratio})$

$$\text{APCF} = \frac{\text{XXX}}{\text{XXX}}$$

Note: If there is no debt then $\text{NOPAT} = \text{NOPAT}$

$$\text{APCF} = \text{APCF}$$

(ii) measurement value due to adoption of new strategy :-

Value of firm after adoption of new strategy (using best method)

$$\rightarrow \text{Switching value of firm before strategy} \quad (\times \frac{1}{k_e})$$

$$\text{Switching value of firm before strategy} \quad (\times \frac{1}{k_e})$$

$$\text{Switching value of firm before strategy} \quad (\times \frac{1}{k_e})$$

cash flow to equity

Step 2 calculate value of equity by discounting the APCF using k_e (cost of equity)

If there is perpetual APCF with constant growth,

$$\text{Value of equity} = \frac{\text{APCF}_1}{k_e - g}$$

$$\text{Value of equity} = \frac{\text{Expected APCF at end of 1st year}}{k_e - g}$$

If there is perpetual APCF with variable growth.

N of years APCF for certain period by k_e

$$\rightarrow \text{Value of equity} = \frac{\text{APCF}_1}{k_e - g}$$

Relative valuation methods.

(i) sales (Revenue) multiple method:-

In this VOF is calculated using sales (Revenue) multiple of a similar company

Enterprises value

$$\frac{EBITDA \text{ multiple}}{EV} \times \frac{EBITDA}{\text{sales}}$$

$$EV(\text{our}) = \text{sales multiple} \times \text{sales (similar co)}$$

(ii) EBITDA multiple method

In this method VOF is calculated using EBITDA multiple of a similar Co

$$EV(\text{our}) = \frac{EBITDA \text{ multiple}}{EBITDA} \times \text{sales}$$

$$EBITDA \text{ multiple (similar co)} \times EBITDA(\text{our})$$

Note:- EBITDA (our) should be adjusted factor in above formula as follows

EBITDA (our) in our

(-) Extraordinary gain (x) or

(+) Extraordinary loss (x) or

(-) Income pending to be written off (xxx) or

addition of (xxx)

methods.

(3) Comparable companies multiple (CCM) method.

In this method selling equity is calculated using following ratio of a similar company

$$\frac{MV \text{ to BV}}{BV}$$

(2) MV to Replacement cost - MV

$$\frac{MV \text{ to sales}}{sales}$$

$$\frac{MV \text{ to Net-income}}{net-income}$$

Step 1 Value of our equity - Average of all 4 market value are calculated

(i) Capitalization to sales
(ii) Capitalization to assets
(iii) Capitalization to operating inc

(4) Shop shop Approach (Bucard approach) (Appalach)

This method aimed to calculate value of firm having various business segments

In this method VOF is calculated using following ratios

of each business segment of a similar Co.

(1) Capitalization to sales

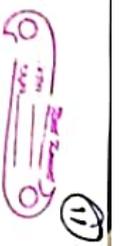
Capitalization to assets

Capitalization to operating inc

Value of firm is calculated following steps

Step 1 same as comparable companies multiple (BV in this step)

Step 2 value of our firm = Avg of all 3



Part III. EVA of MVA

Economic value added

1

① meaning of EVA :-
It measures company's financial performance based on excess min exp. returns

• EVA calculated was invented & registered by a consulting firm (Steven Kaplan et al)

* **Invented capital is calculated as follows:**
 upside approach
 II. upside

ESR	xxx	Total Assets	xxx
(+) ROE	xxx	(-) D	xxx
(+) LTO (eg. sub, etc)	xxx	(+) Noncash adj	xxx
(+) intangible assets	xxx	which is not recorded	xxx
	xxx	cap ⇒	xxx

(+) Non cash adj done in next cap
 • **Other points:** Relative to a company having Higher

EVA dividend = $\frac{\text{EVA}}{\text{no of shares}}$

P10



(13)

② calculation of EVA :-

EVA = NOPAT - **Capital exp**

• NOPAT (Net op. pt. after tax) needs to be adjusted for EVA. col has following:-

EBIT	xxx
(-) Tax on EBIT	(xxx)
NOPAT	xxx
(+) Noncash exp (eg. merger, addbacks)	xxx
Adjusted NOPAT	xxx

Note: If EBIT is not given in question.

NOI (Net income) is available then EBIT
 Financial leverage is available then

NOI (Net income) \times (1 - tax rate) = NOPAT

PL = $\frac{\text{EBIT} - \text{Int}}{\text{EBIT} - \text{Int}}$

EVA can be considered as best money - must
 (Appl. div of value of firm)

Part 1 (2) Market value added

(1) Meaning of MVA

It measures the wealth that comp. is able to create since its foundation

(2) Calculation of MVA

If MVA of firm is given in Ques

MVA of firm = $\text{MVA} \times \text{MVA}$
 (quantified capital)

(3) Calculation of value using MVA

Value of firm using MVA

Value of firm = $\text{MVA} \times \text{MVA}$

• If MVA of eq shares is given in Ques:-

MVA of eq (MVA of eq shares) = $\text{MVA} \times \text{MVA}$
 (share holder's wealth)

cap. MVA
 Home MVA
 reg. MVA
 cash MVA
 debt MVA
 wing MVA
 W.M.A.

Part 15 other's topic

1. Valuation of digital platforms.

(1) Meaning of digital platforms

• Digital platform is a software based online infrastructure for online activities of organizations between users.

Eg: of digital platforms

Amazon, Uber, Google, YouTube, WhatsApp, Telegram, LinkedIn, Flipkart, Netflix

(2) Methods for valuation of digital platforms.

Income (earnings) based model.

cash flow based model.

same as for other companies except find cash flows/profit by estimating shares of over digital platforms.

Relative valuation models same as for other companies valuation of digital platform

Valuation of distressed companies

(1) meaning of companies
distressed



• distressed company is a company which is unable to meet its financial obligations

(i.e. debt payments a company had may lead to bankruptcy)

• It does not mean that distressed Co's worthless, it may also have some value.

• based on total cost of rebuilding the platform (i.e. development coding cost of platform)

(2) methods for valuation of distressed co



• modified discounted cash flow method

It is same as cash flow model of other companies

except that expected future cash flows are calculated as follows.

Expected future cash flows = $\text{Cash flow}_t \times (1 - \text{prob of default})^t$

• cash flow based valuation method

Value of firm cash flow based model (same as for other Co's)

(+) Adjusted present value method

$$= \text{PV of debt} \times (1 - \text{prob of default}) \times \text{PV of debt}$$

Adjusted present value method

Value of company without debt

(+) Effect of debt on present expected bankruptcy cost

$$= \text{PV of debt} - \text{PV of bankruptcy cost}$$

Best approach: Bankruptcy cost (value of Co without debt) + Prob of default (value of Co without debt) - bankruptcy cost

• Relative valuation models. same as for other companies.

Valuation of startups

- cost + duplicate approach

→ value of startup is based on total costs & size of startup and its product development including purchase of assets

- Basket approach
value of startup is based on total estimated value of 5 key success factors

Core value, technology, execution, strategic relationship, R&D (Risks & costs)
• comparable transactions method
value of startup is based on valuation of similar startups.

Ex: A total is a startup having 10 lakh users & B total (similar business startup) has 2 crore users & its value is ₹ 2000 cr

Value per user in B total (similar startup)
 $\frac{2000 \text{ cr}}{2 \text{ cr}} = ₹ 10 \text{ per user}$

∴ Value of A total ⇒ 10 lakh users × ₹ 10 per user
→ ₹ 1000 cr

• scorecard valuation method

Step 1) Calculate scorecard multiplier (1.2)

Quality of startup	Assign Ability (1-2)	Weights of each	[1x2]
Strength of team	✓	0.30	✓
size of opt	✓	0.25	✓
product or service	✓	0.15	✓
size of opportunity	✓	0.25	✓
Product revenue	✓	0.15	✓
Competitive cost	✓	0.10	✓
Marketing	✓	0.10	✓
Additional growth	✓	0.05	✓
Others	✓	0.05	✓

Scorecard multiplier = 1.2

Step 2) Value of startup = Valuation of similar startup × multiplier (1.2)

• First Chicago method

Same as cash flow based model for other companies except the targeted future cash flows are calculated as follows:-

Expected future cash flows \times Prob of w_{SC}
Worst scenario cash flows \times Prob of w_{SC}
Normal scenario cash flows \times Prob of w_{SC}
Best scenario cash flows \times Prob of w_{SC}

• Venture capital method

Step 1 Estimate value of startup at the time of exit

Step 2 value of startup - PV of estimated value at the time of exit using investor's required rate of return.

Entrepreneurial value \Rightarrow % of shares of comp