Konvexity

Solutions to Item Sets

1. Correct Answer is B: Sustainable growth rate = PRAT = profit margin*retention ratio*asset turnover*leverage = 0.08*{(5-2.5)/5}*1.2*1.5 = 7.2%
2. Correct Answer is B: The value of the company = D_1/ (k_e-g). D_1=D_0*(1+g) = (2,500,000/500,000)*(1+0.072) = 5*1.072 = $5.36. k_e= 0.04 + 1.2*0.08 = 13.60%. Value of the company = 5.36/(0.136 – 0.072) = $83.75
3. Correct Answer is B: The present value of growth opportunities = the value of stock with growth – the value of stock without growth = 83.75 – (E/k_e) = 83.75 – (5,000,000/500,000)/0.136 = $10.22.
4. Correct Answer is C: No, Stephan is not correct because the value of company can differ depending on the stake. The majority stakeholder can exercise more power and the company is generally more valuable to the majority stakeholder.
5. Correct Answer is A: The justified trailing P/E ratio = P/E_0 = 83.75/10 = 8.375.
6. Correct Answer is C: Implied required rate of return = (D_1/P) + g = (5.36/65.5) + 0.072 = 15.38%. The spread = 15.38% - 13.60% = 1.78%.

7. Correct Answer is B: Free cash flow to the firm = NI + NCC –WCInv + Int*(1-t) – FCInv = 40.8 + (40+15) – {(65+80-30) – (55+75-30)} + 27*(1-0.4) – (675-655+40) = 40.8 + 55 – 15 + 16.2 – 60 = $37 million.
8. Correct Answer is C: Free cash flow to equity = FCFF – Int*(1-t) + Net borrowings = 37 – 27*(1-0.4) + (285+60 – 250-45) = 37 – 16.2 + 50 = $70.8 million
9. Correct Answer is A: FCFE = net change in cash + Total net payment to equity holders = 100 + Total net payment to equity holders. Net payment to equity holders = 70.8 – 100 = -$29.2 million.
10. Correct Answer is C: As the deferred tax assets are expected to reverse in the coming future, those assets should be ignored while calculating noncash charges.
11. Correct Answer is C: The amortized discount is a noncash item which was subtracted from the revenues to come at the net income. To get FCFE from net income, it should be added back again. The coupon payments should be ignored as those are the cash items.
12. Correct Answer is B: Required return on equity = 12.0%. Market value of equity = $FCFE_1$/ (k_e-g) = 70.8/ (0.12-0.06) = $1,180 million. Market value of debt = (250+45)*1.1 = $324.5 million. Market value of firm = 324.5 + 1,180 = $1,504.5 million.

13. Correct Answer is B: ROE for 2012-13 = 72/400 = 18%. ROE for 2013-24 = 18%. Residual income for 2013-14 = (0.18-0.12)*450 = $27 million. The market value of equity = B_0 + RI1/ (1+r- ω) = 450 + {27/ (1+0.12-0.8)} = $534.375 million. Value of stock per share = 534.375/1.2 = $445.31.
14. Correct Answer is B: The present value of the company's expected economic profit = $534.375 - $450 =$84.375 million.
15. Correct Answer is C: If the residual income persists forever, then the value of the company = 450 + (27/0.12) = $675 million.
16. Correct Answer is C: According to clean surplus relation, the ending book value = 25 + 7 -5 = $27. As the relation is violated, the ending book value can't be equal to $27.

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17. Correct Answer is B: Rahul is incorrect about the driving factors. The higher is the spread between ROE and required return on equity, the higher is the stock price.
18. Correct Answer is B: High ROE is associated with lower persistence factor as it would be difficult for the company to manage a high ROE in the long-run.

19. Correct Answer is B: Justified P/S ratio = Profit margin*Justified trailing P/E ratio. Growth rate = ROE*retention ratio = (120/600)*0.333 = 6.66%. Required return on equity = 6% + 0.8*10% = 14%. Justified trailing P/E ratio = (1-retention ratio)*(1+g)/(r-g) = (1-0.33)*(1+0.067)/ (0.14-0.067) = 9.69. Justified P/S ratio = 0.1*9.69 = 0.969.
20. Correct Answer is B: Justified P/B ratio = (ROE-g)/(r-g) = (0.20 – 0.067)/ (0.14-0.067) = 1.82.
21. Correct Answer is A: The stock is overvalued. The growth rate of industry is more than that of stock and also the required return on equity is lesser for industry than the stock. So, the only reason could be the overvalued stock.
22. Correct Answer is B: The PEG ratio implies that the impact of growth rate is linear on the stock while in fact the impact of the growth rate on the stock price is non-linear.
23. Correct Answer is C: Justified dividend yield = (r-g)/ (1+g). As we can clearly see that it is negatively related to the growth rate.
24. Correct Answer is B: The statement made by Roshan regarding the calculation of average industry multiples is wrong. The two best methods are to take median and weighted harmonic mean. Arithmetic mean is not a good measure as outliers impact the arithmetic mean the most.

25. Correct Answer is A: Asset beta of Mintax Limited = Equity beta/(1+D/E). Cost of equity using CAPM = 6% + equity beta*(10% - 6%) = 12% => Equity beta = 1.5. Asset beta = 1.5/1.667 = 0.9.
26. Correct Answer is B: Equity beta for Brooklyn Inc. = Asset beta of Mintax limited*(1+D/E of Brooklyn Inc.) = 0.9*1.8 = 1.62. Cost of equity = 6% + 1.62*(10% - 6%) = 12.48%
27. Correct Answer is C: Holding period return for Ashish = (18-12.5)/12.5 = 44%.
28. Correct Answer is C: Ashish is incorrect regarding Pastor-Stanbaugh model when he states that the base value for the liquidity factors is one. The actual base value for the liquidity factor is zero.
29. Correct Answer is A: Cost of equity for Yemen Inc. = 7.8% + (-0.3)*2.5% = 7.05%.
30. Correct Answer is B: Time horizon risk arises due to the unanticipated change in the return difference between 20-year government bonds and 30-day Treasury bills. It would get affected the most.

