

Solutions to Item Sets

1. Correct Answer is C: Change in working capital investment = (Accounts receivable + Inventory – Accounts payable)₂₀₁₂ – (Accounts receivable + Inventory – Accounts payable)₂₀₁₁ = (55+145-95) – (40+120-105) = 105 – 55 = \$50,000.
2. Correct Answer is B: Change in fixed capital investment = Ending Net PP&E – Beginning Net PP&E + Depreciation – gain on sale of long-term asset = 440 – 450 + 55 – 20 = \$25,000.
3. Correct Answer is A: FCFF = NI + NCC + Int*(1-t) – FCIInv – WCInv = 48 + (55-20 (gain on sale of asset)) + 35*(1-0.4) - 25 – 50 = 48 + 35 + 21 - 25 – 50 = \$29,000.
Or
It can be calculated by uses of FCFF. FCFF will be equal to the change in cash plus after tax interest expense plus net repayment of debt plus cash dividends plus net stock repurchases. FCFF = (103-75) + 35*(1-0.4) + (-10-10) + 0 + 0 = 28 + 21 – 20 = \$29,000.
4. Correct Answer is C: WACC for the firm = 0.08*(1-0.4)*(0.8/1.8) + 0.125*(1/1.8) = 9.077%. Value of the firm = 29*(1.1/1.09077) + 29*(1.1/1.09077)² + 29*(1.1/1.09077)³ + 29*1.1³*1.04/[(0.09077-0.04)*1.09077³] = \$697,633.
5. Correct Answer is C: None of the dividends payment, stock issuance and debt issuance has any impact on the current year's FCFF as these things are done after the calculation of FCFF. Debt issuance will impact FCFE but not FCFF.
6. Correct Answer is C: If dividends are paid, then the firm is reinvesting less money and thus the growth rate of FCFF will be less and thus the future FCFF will tend to decrease. However, it can also happen that company does not need any money for reinvestment. In that case, there will be no impact on the firm's future FCFF. Future FCFF is least likely to increase on payment of dividends.
7. Correct Answer is A: The predicted value of revenue for 3rd quarter for 2010 = $e^{[b(0) + b(1)*t]} = e^{(2.15+0.055*43)} = \91.38 million. Note there that the t is equal to 43 (10*4 = quarters from 2000 to 2009 plus 3 quarter of 2010)
8. Correct Answer is A: The AR (1) model should be used as it has a lower RMSE for out-of-sample forecast.
9. Correct Answer is C: No, he can't use the regression model as the time series are not covariance stationary and also not co-integrated.
10. Correct Answer is C: The null hypothesis should be that the coefficient of e_{t-1}^2 is equal to zero i.e. $a_1 - 1 = 0$ or $a_1 = 0$.
11. Correct Answer is C: All statements are correct.
12. Correct Answer is B: Statement 6 is incorrect as a random walk model is not covariance stationary because it does not have a mean reverting level because of unit root.
13. Correct Answer is B: F-statistic = MSR/MSE = (RSS/k) / (SSE/n-k-1) = (84.5/3) / (120.50/56) = 13.09.
14. Correct Answer is B: Percentage of variation unexplained by the regression model = SSE/SST = 120.50/205.00 = 0.5878 = 58.78%.

15. Correct Answer is B: Required return on equity = $5.5\% + 1.6 \cdot 6.0\% + 0.4 \cdot 2.5\% - 0.7 \cdot 1.5\% = 15.05\%$.
16. Correct Answer is B: Test statistic for test for heteroskedasticity = $n \cdot R^2_{\text{residuals}} = 60 \cdot (128.55/440.67) = 17.50$. It is greater than the critical test statistic of 7.815 for 3 degrees of freedom. So, there is a presence of heteroskedasticity.
17. Correct Answer is B: Adjusted R^2 before including the liquidity premium = $1 - [(n-1)/(n-k-1)] \cdot (1-R^2) = 1 - (59/56) \cdot (1 - 84.50/205.00) = 0.3807$. Adjusted R^2 after including liquidity premium = $1 - (59/55) \cdot (1 - 84.50/205.00 - 0.02) = 0.3909$. Peter should include the variable as the adjusted R^2 increased because of inclusion of additional variable.
18. Correct Answer is C: test-statistic value = $(1.6 - 1.0)/0.4 = 1.5$. The critical value of test statistic for 5% level of significance for two-tailed test and 59 degrees of freedom is 2.00. As the test-statistic value is lower than the critical test statistic, we fail to reject the null hypothesis and it cannot be stated statistically that the beta is different than 1.
19. Correct Answer is C: Justified P/E ratio for Xyre Limited = $1 / \{(r-l) + (1-\lambda) \cdot l\} = 1 / \{(0.145 - 0.05) + (1 - 0.60) \cdot 0.05\} = 1 / \{0.095 + 0.4 \cdot 0.05\} = 1/0.115 = 8.70$. Justified P/E ratio for Sonoco Inc. = $1 / \{(0.125 - 0.02) + (1 - 0.5) \cdot 0.02\} = 1/0.115 = 8.70$. Actual P/E ratio for Xyre Limited = $95/12 = 7.92$. Actual P/E ratio for Sonoco Inc. = $60/8 = 7.5$. Both the stocks have higher justified P/E ratios than the actual market P/E ratios. So, both stocks are undervalued.
20. Correct Answer is C: Both stocks have the same justified P/E ratio as computed in the previous question.
21. Correct Answer is C: Reason 2 is inaccurate. The high P/E ratio can be due to the lower required rate of return and not due to the higher required rate of return.
22. Correct Answer is B: Limitation 1 is inaccurate. PEG ratio assumes a linear relationship between P/E and growth while in actuality it is non-linear.
23. Correct Answer is A: Justified P/B ratio = $(ROE - g)/(r-g)$. From forward P/E ratio, $(1-b)/(r-g) = 18 \Rightarrow r-g = 0.4/10 = 0.04$. $g = 0.12 - 0.04 = 0.08$. Justified P/B ratio = $(0.16 - 0.08)/0.04 = 2.0$.
24. Correct Answer is B: He is explaining the cause of lower P/E ratio at the top of the cycle rather than the cause of higher P/E ratio at the bottom of the cycle.
25. Correct Answer is B: The equity risk premium of S&P = $[(1+EINFL)(1+EGREPS)(1+EGPE) - 1] + EINC - \text{Expected risk free return} = [1.02 \cdot 1.025 \cdot 1.05 - 1] + 0.03 - 0.06 = 6.78\%$.
26. Correct Answer is B: GGM equity risk premium estimate = dividend yield + long term earnings growth rate - long-term government bond yield = $2.5\% + 4.5\% - 3.0\% = 4.00\%$.
27. Correct Answer is A: Required return on equity for Bluestone Inc. using Fama-French model = Risk free rate + $\beta^{\text{market}} \cdot \text{RMRF} + \beta^{\text{size}} \cdot \text{SMB} + \beta^{\text{value}} \cdot \text{HML} = 6.0\% + 1.2 \cdot 6.0\% + 0.9 \cdot 1.5\% - 0.7 \cdot 3.0\% = 12.45\%$
28. Correct Answer is A: Statement 1 is not correct. The more liquid stock will have a negative (lower) beta and the less liquid stock will have a positive (higher) beta.

29. Correct Answer is C: Modified duration = Macaulay duration / $(1 + (YTM/n)) = > 1 + YTM = 12.80/11.95 = 1.07113 \Rightarrow YTM = 7.11\%$. Required return for Capstone Inc. = YTM on long-term bond + Risk premium = $7.11\% + 4.5\% = 11.61\%$.
30. Correct Answer is A: Statement 4 is not correct. In macroeconomic model, the factors are macroeconomics variables that affect the future expected cash flows of the company.