

Short Answer (15 points each)

1. If you submit a market order to sell shares of stock, is the bid or ask price the price at which your transaction will occur?
2. Assume two annuities have the same future value (on date of final payment). All characteristics of the annuities are identical except for number of total payments and interest rate. What must be true about the interest rate on the account that makes a greater number of total payments?
3. Assume the corporate tax rate is 35% and that your firm's depreciation expense rises by \$100 per year. Calculate how your firm's operating expenses need to change so that free cash flow remains unchanged.
4. Letting the expected return on Barnes & Noble (BN) equal "X", set up the calculations needed to determine the standard deviation of returns on BN in 2013 if you believe that in 2013 there is a 25% chance that BN will fall 45%, a 60% chance that BN will rise 10%, and a 15% chance that BN will rise 50%.
5. What happens to the beta of a portfolio of two assets if the correlation between the two assets falls?
6. Vulcan Materials (VMC) is currently funded with \$9.63 billion of equity with a beta of 1.22. Set up the calculations needed to determine the beta of VMC stock if it were to issue \$2.81 billion of debt with a 0.25 beta and use the proceeds to repurchase shares.
7. Who benefits and who loses when firms which are funded with only equity pursue investments that diversify the firm? Note: You only need to state who benefits and who loses, not why.
8. Assume two puts on Netflix are equivalent except that the strike price on option A exceeds the strike price on option B. Which option will have a higher price? Note: Your answer will be "A" or "B".
9. Assume bonds issued by David Blaine Capital mature for \$100 million in 7 years. Assume also that in 7 years, David Blaine's assets will equal either \$120 million or \$70 million. The payoffs on these bonds can be duplicated by owning David Blaine's assets and a long or short option on the firm's assets. What option position is required? What is the payoff on this option for each ending value for David Blaine's assets?
10. Assume you have used the Black-Scholes Option Pricing Model to value Yehaa stock and have found that d_1 equals 0.758 and d_2 equals 0.580. Set up the calculations needed to determine the beta of Yehaa's debt if the market value of its debt equals \$190 million, the market value of its equity equals \$200 million, and the beta of Yehaa's assets equal 0.7.

Problems (75 points each)

1. Assume that Barnes and Knights Booksellers' stock price currently equals \$54 but that its stock price will either climb to \$65 or fall to \$49 next year. Assume also that you can buy a call on Barnes and Knights with a strike price of \$55 for \$5. Alternatively, you can build an equivalent portfolio by buying 0.625 shares and short-selling \$29.733 of risk-free bonds earning a 3% interest rate. Set up a table that shows the transactions required to create an arbitrage profit and which demonstrates that the conditions of arbitrage are met. Note: calculations required.

2. Assume you invest \$100,000 in Kroger and \$300,000 in Deere. Set up all of the calculations needed to determine the following:
 - a. the beta of Kroger?
 - b. the beta of your portfolio if Deere's beta equals 1.39?
 - c. the expected return on your portfolio if the expected return on Deere is 10%.

<u>Year</u>	<u>Return on:</u>	
	<u>Kroger</u>	<u>S&P500</u>
2012	+13%	+12%
2011	+10%	0%
2010	+11%	+13%
2009	-21%	+24%

Use the following to answer questions 3 and 4

Assume that Falling Apple Inc. is considering whether or not to build a new factory at a cost of \$150 million. The firm has already spent \$5 million on the land on which the factory will be built. This land could be sold today for an after-tax cash flow of \$4 million. If it is built, the factory will generate net cash flows of \$1 million four months from today. After this initial cash flow, cash flows will occur monthly and will grow by 0.5% each. The final cash flow will occur 30 years from today.

The factory can be expanded at any time over the next 4 years at a cost of \$50 million. The expansion is expected generate net cash flows of \$4.5 million per year through 30 years from today. In addition, the factory can be sold for \$75 million any time over the next 5 years.

The standard deviation of returns on the factory will equal 30% and on the expansion will equal 40%. This exceeds the standard deviation of returns of 25% on Falling's existing assets. The beta of the factory and the expansion will be 1.2. This exceeds the beta of Falling's existing assets which equals 1.1.

The expected return on the market equals 8% and the risk-free rates vary by maturity as follow:
 1 month = 0.12%; 2 months = 0.07%; 3 months = 0.10%; 4 months = 0.13%; 5 months = 0.14%;
 6 months = 0.15%; 1 year = 0.21%; 2 years = 0.29%; 3 years = 0.35%; 4 years = 0.47%;
 5 years = 0.64%; 10 years = 1.73%; 20 years = 2.74%; 30 years = 3.04%

3. Set up the calculations needed to determine the net present value of building the factor ignoring the impact of any options on the value of the project. Note: No need to solve anything.
4. Set up the calculations needed to determine the impact being able to expand the factory on the value of the factory to the firm. Note: No need to solve anything.
5. Assume that the corporate tax rate is 35%, that the personal tax rate on equity income is 25%, and that the personal tax rate on interest income equals 45%. Assume also that Snews Corp. has a 20% chance of earning \$100 million, a 50% chance of earning \$120 million, and a 30% chance of earning \$155 million. Determine the optimal level of leverage for Snews. Note: calculations required.
6. WEAir Inc.'s stock price currently equals \$100 per share. Over each of the next two years, WEAir's stock will rise by 20% or fall by 10%. Calculate the value of a put with a \$110 strike price that expires two years from today if the risk-free interest rate equals 2%.