

Commerce Mentorship Program

COMM 298 – Introduction to Finance Review

Three key conceptual items to cover:

1. DCF
2. Estimating Cash Flows
3. Calculating a discount rate [the WACC method]

Review Questions:

1. You place \$100 in a bank account for 10 years, and the interest rate on your deposit is 5%, how much do you have at the end of the holding period?
2. You deposit \$500 in a savings account and wait for it to grow to \$1,000. How long will this take if interest rates are 10%?
3. What would you rather have?
 - a. \$1000 per year forever, if interest rates were 10%
 - b. \$10,000 for 5 years if interest rates are 3%
4. If I were to buy 50 shares of General Motors [GM] at \$20.00 a share, and then sell them for \$15.00 a share 1 year later, what would my total return over 1 year be?
 - a. What if after investing in the company, GM offered to convert my investment into an annuity that would pay me \$500 a year for 5 years, then \$1500 a year beginning the year after that. Assume interest rates are 5%. Would I want to go with this option or would I rather want to keep my original investment in shares?
5. What is the current price of a bond that has a face value of \$1,000, YTM of 5%, 2% annual coupon, and matures in 5 years?
6. The year is 2013. You are a project manager for a construction company that is considering constructing a tower in downtown Vancouver. Before beginning the construction of the tower, the company CEO has asked you to determine the expected net present value [NPV] of the project, so that he can let the shareholders know the amount of value the project is expected to generate. He has supplied the following information for you to consider:
 - a. The company will be using equipment that was bought in 2005 for a price of \$3,000,000
 - b. The tower will take 5 years exactly to complete from the start date
 - c. It will \$20,000,000 each year to build the tower – various capital expenditures

- d. Once the tower is complete, it is expected that it will be sold for \$135,000,000

The CEO has also provided information related to the company's cost of capital:

- e. The company's market value is \$500,000,000 of which:
 - i. \$200,000,000 is Equity
 - ii. \$150,000,000 is Debt
 - iii. \$150,000,000 is Preferred Stock
- f. The company faces a 40% tax rate – *for the purposes of this question, only use the tax rate to calculating the discount rate- do not tax the income from sale of the building!*
- g. The yield on the company's publicly traded debt is 5%
- h. The company's preferred stock pays out a \$5 dividend, and trades at \$25/share
- i. The risk free rate is 2%, the beta of the company's stock is 2, and the expected return on the market is 30%

The CEO cannot do math well at all. Please determine for him what the NPV of the company's project will be, by projecting free cash flow and discounting the cash flow back using the WACC method.

- 7. Calculate the weighted average cost of capital for Silicon Valley Penguins:
 - a. The yield on government t-bills is 2%
 - b. The yield on commercial bonds is 6%
 - c. The YTM of Penguin's publicly traded debt is 4.5%
 - d. The tax rate that the company faces is 20%
 - e. Market pundits expect a market return of no less than 35% this year based on historical estimates and the fact that the Canucks playoffs run is over #Sad
 - f. The systematic risk of the stock is such that it moves 2 units for every 1 unit movement in the market index
 - g. The yield on the company's preferred debt is 10%
 - h. The capital structure of the company is divided into equal thirds (1/3 equity, 1/3 debt, 1/3 preferred shares)
- 8. What is the only type of risk that a market portfolio has, and why is this?
- 9. You are a fund manager that is invested in 3 different stocks, please calculate the overall return on your portfolio, given:
 - a. Stock A Return: 25%
 - b. Stock B Return: 10%
 - c. Stock C Return: (-13)%

In addition, stock A consists of 20% of the portfolio, stock B consists of 25% and stock C 55%.

10. It is now 2014. Your company is evaluating two projects that involve an equal degree of risk- you just have to decide which project is worth doing. You can only pick one of the two. See information below:

Project A

- A development project in Toronto, on land that we have owned since 1990, and was purchased at a cost of \$20,000,000
- The CEO's salary is \$4,000,000, and was set by the Board of Directors in 2012
- We expect to make \$100,000 a year for 5 years off of this project, beginning 10 years from now
- The expected capital expenditures will be \$150,000 a year for 10 years – until completion
- The WACC is 10%

Project B

- We will invest all of our money [\$450,000] into a permanent preferred share being offered by the government
- We will have to pay for it immediately, but we will not receive preferred share dividends until 5 years from now
- The dividends will be \$20,000 per year, forever
- The appropriate discount rate is 10%