

Finance 340 – Financial Management 1
Spring 2008

Final Exam – Solutions

Multiple-choice questions

- _____ 1. To help finance a major expansion, Dimkoff Development Company sold a bond several years ago that now has 20 years to maturity. This bond has a 7 percent annual coupon, paid semi-annually, and it now sells at a price of \$1,103.58. The bond cannot be called and has a par value of \$1,000. If Dimkoff's tax rate is 40 percent, what component cost of debt should be used in the WACC calculation?
- A. 6.10%
 - B. 2.44%
 - C. **3.66%**
 - D. 4.20%
 - E. None of the above; the correct answer is _____.
- _____ 2. Which of the following is NOT a potential problem with the IRR?
- A. The IRR may not be unique if the cash flows change sign more than once.
 - B. The IRR assumes that project cash flows are reinvested at the IRR rather than the discount rate.
 - C. The IRR does not take into account the size of the initial investment when comparing mutually exclusive projects.
 - D. **ALL OF THE ABOVE ARE POTENTIAL PROBLEMS WITH THE IRR.**
 - E. None of the above are potential problems with the IRR.
- _____ 3. Jerrod owns an investment that will pay \$400 per year forever into the future. If his discount rate is 13 percent, how much is this investment worth to him today?
- A. \$5,200.00
 - B. **\$3,076.92**
 - C. \$10,198.48
 - D. There is not enough information to answer this question.
 - E. None of the above; the correct answer is _____.
- _____ 4. How much will this investment be worth next year?
- A. \$5,200.00
 - B. \$3,476.92
 - C. \$2,998.26
 - D. There is not enough information to answer this question.
 - E. **NONE OF THE ABOVE; THE CORRECT ANSWER IS \$3,076.92.**

- _____ 5. A company's perpetual preferred stock currently trades at \$80 per share and pays a \$6.00 annual dividend per share. What is the component cost of preferred equity for this company when calculating the WACC?
- A. 13.33%
 - B. 6.00%
 - C. 8.00%
 - D. There is not enough information to calculate the component cost of preferred equity.
 - E. **NONE OF THE ABOVE; THE CORRECT ANSWER IS 7.50%.**
- _____ 6. The common stock of Anthony Steel has a beta of 1.20. The risk-free rate is 5 percent and the market risk premium is 6 percent. Assume the firm will be able to use retained earnings to fund the equity portion of its capital budget. What is the company's cost of retained earnings, r_s ?
- A. **12.2%**
 - B. 6.2%
 - C. 12.0%
 - D. There is not enough information to answer this question.
 - E. None of the above; the correct answer is _____.
- _____ 7. Peter has invested \$25,000 in an annuity that will pay him \$1,000 per quarter for the next 12 years. At the end of that time he will receive an additional \$45,000. What is the internal rate of return on this investment?
- A. 4.45%
 - B. 4.50%
 - C. 17.82%
 - D. **17.98%**
 - E. None of the above; the correct answer is _____.
- _____ 8. What is the NPV of the investment in the previous question if Peter's required rate of return is 10 percent?
- A. **\$16,528.36**
 - B. (\$14,639.24)
 - C. (\$41,528.36)
 - D. \$41,528.36
 - E. None of the above; the correct answer is _____.
- _____ 9. True or **FALSE**: The payback period is only useful when choosing among mutually exclusive projects.

- _____ 10. Haverford Inc.'s recent dividend was \$3.50 per share. Haverford's earnings per share are \$8.75 and its current stock price is \$97.22. How fast are Haverford's dividends expected to grow in the future?
- A. 9.00%
 - B. 3.60%
 - C. 5.40%
 - D. There is not enough information to answer this question.
 - E. None of the above; the correct answer is _____.
- _____ 11. Trojan Services' CFO is interested in estimating the company's WACC and has collected the following information:
- The company has 26-year, 7.5 percent annual coupon bonds that have a face value of \$1,000 and sell for \$920.
 - The risk-free rate is 6 percent.
 - The market risk premium is 5 percent.
 - The stock's beta is 1.2.
 - The company's tax rate is 40 percent.
 - The company's target capital structure consists of 70 percent equity and 30 percent debt.
 - The company uses the CAPM to estimate the cost of equity and does not include flotation costs as part of its cost of capital.

What is Trojan's WACC?

- A. 9.89%
 - B. 10.88%
 - C. 8.26%
 - D. 9.75%
 - E. None of the above; the correct answer is _____.
- _____ 12. You are considering the choice between two mutually exclusive projects. Project A requires an initial investment of \$5 million and has an IRR of 12 percent. Project B requires an initial investment of \$50,000, and will generate an IRR of 25 percent. Based on this information, which of the following is most correct?
- A. You should choose Project A because it has the larger initial investment.
 - B. You should choose Project B because it has the higher IRR.
 - C. Both projects are equally desirable.
 - D. Neither project is acceptable; reject both.
 - E. **THERE IS NOT ENOUGH INFORMATION TO DECIDE WHICH PROJECT SHOULD BE CHOSEN (EXPLAIN WHAT ADDITIONAL INFORMATION YOU NEED TO MAKE A DECISION).**

YOU NEED TO KNOW YOUR DISCOUNT RATE FOR THE PROJECTS

ALTERNATIVELY, YOU NEED TO KNOW THE NPV OF THE TWO PROJECTS

Use the following information to answer the next three questions.

Consider an investment with the following cash flows:

n	\$
0	(1,000)
1	400
2	(600)
3	700
4	700
5	700

- _____ 13. What is the internal rate of return of an investment with the following cash flows?
- A. 48.27%
 - B. 18.04%
 - C. 1.54%
 - D. A MEANINGFUL IRR CANNOT BE CALCULATED FOR THIS INVESTMENT.**
 - E. None of the above; the correct answer is _____.
- _____ 14. If your discount rate is 12 percent, what is the NPV of this investment?
- A. \$1,175.77
 - B. \$219.13**
 - C. (\$495.15)
 - D. The NPV cannot be calculated for this investment.
 - E. None of the above; the correct answer is _____.
- _____ 15. Assuming the same 12 percent discount rate, what is the MIRR of this investment?
- A. 15.14%**
 - B. 18.04%
 - C. 48.27%
 - D. A meaningful MIRR cannot be calculated for this investment.
 - E. None of the above; the correct answer is _____.
- _____ 16. What is the present value of an investment that is expected to pay \$24,000 at the end of three years if the appropriate discount rate is 14 percent?
- A. \$35,557.06
 - B. \$16,199.32**
 - C. \$18,573.06
 - D. \$24,000.00
 - E. None of the above; the correct answer is _____.

- _____ 17. Assuming the same positive discount rate and the same number of years over which they will be received, which of the following has the larger present value?
- A. A \$2,000 annuity with annual payments.
 - B. A \$1,000 ANNUITY WITH SEMI-ANNUAL PAYMENTS.**
 - C. Both have the same present value.
 - D. There is not enough information to answer this question.
- _____ 18. What is the monthly payment on a \$1.5 million, 25-year mortgage at 7.75 percent interest?
- A. \$11,329.93**
 - B. \$11,460.80
 - C. \$9,687.50
 - D. \$12,314.23
 - E. None of the above; the correct answer is _____.
- _____ 19. If the first payment on this loan is on June 1 of this year, how much total interest will the borrower pay on this loan this year?
- A. \$77,018.81
 - B. \$67,587.33**
 - C. \$115,534.62
 - D. \$57,964.41
 - E. None of the above; the correct answer is _____.
- _____ 20. If the Treasury yield curve is downward sloping, how would the yield to maturity on a 10-year Treasury coupon bond compare to that on a 1-year T-bill?
- A. It is impossible to tell without knowing the relative risks of the two securities.
 - B. THE YIELD ON A 10-YEAR BOND WOULD BE LESS THAN THAT ON A 1-YEAR BILL.**
 - C. The yield on a 10-year bond would have to be higher than that on a 1-year bill because of the maturity risk premium.
 - D. It is impossible to tell without knowing the coupon rates of the bonds.
 - E. The yields on the two securities would be equal.
- _____ 21. Suppose 1-year T-bills currently yield 3.25 percent and the future inflation rate is expected to be constant at 2.50 percent per year. What is the real risk-free rate of return, r^* ? Disregard cross-product terms (i.e., if averaging is required, use the arithmetic average).
- A. 2.88%
 - B. 0.75%**
 - C. 5.75%
 - D. 3.25%
 - E. None of the above; the correct answer is _____.

- _____ 22. True or ***FALSE***: The 1-year Treasury security is generally thought to provide the best estimate of the real, risk-free interest rate.
- _____ 23. Suppose the yield on a 5-year Treasury security is 6.50 percent and the yield on a 3-year Treasury security is 5.25 percent. Assuming the pure expectations theory is correct, what does the market expect a 2-year Treasury security will yield three years from now?
- A. 17.51%
 - B. 8.40%***
 - C. 7.76%
 - D. 8.05%
 - E. None of the above; the correct answer is _____.
- _____ 24. Montana Instruments bonds currently sell for \$1,275 and have a par value of \$1,000. They pay a \$120 annual coupon and have a 20-year maturity, but they can be called in 5 years at \$1,120. What is their yield to call (YTC)?
- A. 8.98%
 - B. 5.55%
 - C. 9.17%
 - D. 12.85%
 - E. NONE OF THE ABOVE; THE CORRECT ANSWER IS 7.31%.***
- _____ 25. Brightway Enterprises' bonds currently sell for \$1,075. They have a 9-year maturity, an annual coupon of \$55, and a par value of \$1,000. What is their current yield?
- A. 4.47%
 - B. 7.50%
 - C. 5.12%***
 - D. 5.50%
 - E. None of the above; the correct answer is _____.
- _____ 26. What is the capital gains yield on a 5-year, 6 percent annual coupon bond with a par value of \$1,000 and a yield to maturity of 6.75 percent?
- A. 0.75%
 - B. 6.75%
 - C. 0.56%***
 - D. 6.00%
 - E. None of the above; the correct answer is _____.

Use the following information for the next two questions:

Angell Inc. hired you as a consultant to help them estimate their cost of capital. Angell recently paid a dividend of \$1.20 per share. This dividend is expected to grow at a constant rate of 6 percent per year into the future. The current stock price is \$50.00. If Angell issues new common stock, it expects to incur 5 percent flotation costs.

- _____ 27. Calculate Angell's component cost of common equity from retained earnings.
- A. 7.40%
 - B. 8.54%**
 - C. 8.40%
 - D. 8.68%
 - E. None of the above; the correct answer is _____.
- _____ 28. Calculate Angell's component cost of common equity from selling new common stock.
- A. 8.53%
 - B. 8.40%
 - C. 8.54%
 - D. 8.68%**
 - E. None of the above; the correct answer is _____.
- _____ 29. Proffer Inc. recently paid a \$4.00 dividend. This dividend is expected to remain constant for 3 years, after which time it is expected to grow by 4 percent annually for the indefinite future. The required return on Proffer's stock is 15 percent. What is the value of this stock today?
- A. \$34.00**
 - B. \$29.92
 - C. \$30.76
 - D. \$33.04
 - E. None of the above; the correct answer is _____.
- _____ 30. An investor is forming a portfolio by investing \$50,000 in stock A that has a beta of 1.50, and \$25,000 in stock B that has a beta of 0.90. The market as a whole is expected to return 8.5 percent and the 1-year Treasury securities have a yield of 4.0 percent. What is the required rate of return on the investor's portfolio?
- A. 15.05%
 - B. 9.85%**
 - C. 9.40%
 - D. 10.50%
 - E. None of the above; the correct answer is _____.

- _____ 31. Lavinia Products dividend is expected to remain constant at \$2.00 per share for the next five years. After that, the dividend is expected to grow at a constant rate g . If Lavinia's current stock price is \$52 per share and the required rate of return on this stock is 12 percent, at what rate are dividends expected to grow in five years (i.e., what is g)?
- A. 8.47%
 - B. 9.23%**
 - C. 12.00%
 - D. 3.85%
 - E. None of the above; the correct answer is _____.
- _____ 32. An analyst estimating the intrinsic value of the Rein Corporation stock estimates that its free cash flow at the end of the year ($t = 1$) will be \$300 million. The analyst estimates that the firm's free cash flow will grow at a constant rate of 7 percent a year, and that the company's WACC is 11 percent. The company currently has debt and preferred stock totaling \$500 million and 150 million outstanding shares of common stock. What is the intrinsic value (per share) of the company's stock?
- A. \$16.67
 - B. \$25.00
 - C. \$33.33
 - D. \$46.67**
 - E. None of the above; the correct answer is _____.
- _____ 33. Tapley Dental Supply Company has the following data:
- | | |
|---------------|----------|
| Net income | \$240 |
| Sales | \$10,000 |
| Total assets | \$6,000 |
| Debt ratio | 75% |
| TIE ratio | 2.0 |
| Current ratio | 1.2 |
| BEP ratio | 13.33% |
- If Tapley could streamline operations, cut operating costs, and raise net income to \$300 without affecting sales or the balance sheet (the additional profits will be paid out as dividends), by how much would its ROE increase?
- A. 3.00%
 - B. 3.50%
 - C. 4.00%**
 - D. 4.25%
 - E. None of the above; the correct answer is _____.

- _____ 34. Assume the risk-free rate is 5 percent and that the market risk premium is 7 percent. If a stock has a required rate of return of 13.75 percent, what is its beta?
- A. 1.25
 - B. 1.35
 - C. 4.38
 - D. 3.38
 - E. None of the above; the correct answer is _____.
- _____ 35. What rate of return would you earn if you paid \$1,500 for a perpetuity that returns \$105 per year?
- A. 6.01%
 - B. 7.00%
 - C. 14.28%
 - D. 10.00%
 - E. None of the above; the correct answer is _____.
- _____ 36. During the latest year Ruth Corp. had sales of \$300,000 and a net income of \$20,000, and its year-end assets were \$200,000. The firm's total debt to total assets ratio was 40 percent. Based on the Du Pont equation, what was the firm's ROE?
- A. 15.33%
 - B. 16.33%
 - C. 15.67%
 - D. 16.67%
 - E. None of the above; the correct answer is _____.
- _____ 37. An investor is considering starting a new business. The company would require \$500,000 of assets, and it would be financed entirely with common stock. The investor will go forward only if she thinks the firm can provide a 15.0 percent return on the invested capital, which means that the firm must have an ROE of 15.0 percent. How much net income must be expected to warrant starting the business?
- A. \$75,000
 - B. \$3,333
 - C. \$33,333
 - D. There is not enough information to answer this question.
 - E. None of the above; the correct answer is _____.

Use the following information to answer the next three questions.

Consider an investment that will cost \$24,000 and generate the following stream of cash flows in the future:

n	\$
1	4,500
2	4,500
3	10,000
4	12,000
5	12,000

_____ 38. What is the net present value of this investment using an 24 percent discount rate?

- A. **(\$3,030.48)**
- B. \$20,969.52
- C. \$19,000.00
- D. The NPV cannot be calculated for this investment.
- E. None of the above; the correct answer is _____.

_____ 39. What is the IRR of the investment?

- A. 24.00%
- B. **18.86%**
- C. 4.46%
- D. The IRR cannot be calculated for this investment.
- E. None of the above; the correct answer is _____.

_____ 40. What is the most you should be willing to pay for this investment?

- A. **\$20,969.52**
- B. \$43,000.00
- C. \$44,969.52
- D. There is not enough information to answer this question.
- E. None of the above; the correct answer is _____.