

Closed Book

1. (3 points) What is almost always listed as the primary goal of managers?

Maximize shareholder's wealth.

2. (4 points) The overall process of capital budgeting can be broken down into five steps as a project moves from idea to reality. Name these five steps. Describe which step is most important.

List on page 166 of EFS 2nd edition.

Most important = Generate ideas Why? Without good ideas, there are no good projects and the firm is doomed to failure.

3. (2 points) Match the Capital Budgeting method with the assumed reinvestment rate (answers may be used more than once).

- a. Net Present Value _____ B _____
- b. Internal Rate of Return _____ A _____
- c. Payback Period _____ E _____
- d. Profitability Index _____ B _____

- a. Internal Rate of Return
- b. Cost of Capital
- c. Return on Investment
- d. Return on Equity
- e. None of the above.

4. What is the best Capital Budgeting Decision Rule? Why?

NPV, as it is most consistent with maximizing shareholder's wealth.

5. Hard capital rationing refers to the rationing imposed externally by limited funds for borrowing from outside sources.

- a. True
- b. False

6. An option is in-the-money if exercising the option will not provide a monetary gain.

- a. True
- b. False

7. Briefly define a "real option." How do real options change the calculation of a project's NPV?

Active management after project is accepted gives the right to accept good and avoid bad outcomes on real assets.

Strategic NPV = Passive NPV + Value of Real Options – Cost of Real Options.

8. Project A has an internal rate of return of 18 percent, while Project B has an internal rate of return of 16 percent. However, if the company's cost of capital (WACC) is 12 percent, Project B has a higher net present value. Which of the following statements is most correct?

- a. The crossover rate for the two projects is less than 12 percent.
- b. Assuming the timing of the two projects is the same, Project A is probably of larger scale than Project B.
- c. **Assuming that the two projects have the same scale, Project A probably has a faster payback than Project B.**
- d. Net Present Value cannot be used to choose between these two projects.
- e. Answers b and c are correct.

9. (2 points each) Real Options – fill in the blanks. If you need to describe the option more fully, write your description near the question. For the record, the type of option is either call or put. The underlying asset refers to the item, which upon a change in value, will affect the decision to exercise or not exercise the option. If you need to make assumptions to answer the question, write your assumptions beside the question.

a. You go to a job interview and the potential employer makes a binding job offer provided you can graduate by Spring 2005.

Type _____ call if assets is your value as a worker, put if asset is value of job _____ Who is long _____ you _____ Who is short _____ employer _____ Underlying Asset _____

b. You are trying to avoid completing the 4531 project. If no one turns in the project, everyone gets an 85. If even one person turns in the project, all of those who do not complete the project will receive zero. For each person who does not turn in their projects, the average scores of those who turn in the project will increase by 1.5 points (i.e., from 85 to 86.5 if one person does not complete the project). In a meeting with your classmates, all of them agree to not complete the project. While you are unsure of your classmates, you are certain that you will not turn in the project.

Type _____ call _____ Who is long _____ classmates _____ Who is short _____ you _____ Underlying Asset _____ their grade on project _____

c. You have heard that some of your classmates were less than truthful about not completing the project. They plan to turn in the project. You have a very large, somewhat older sister who promises to physically injure anyone who turns in the project. While you disapprove of her violent tendencies, she always carries out her threats.

A couple of answers were allowed

Type _____ call _____ Who is long _____ classmates _____ Who is short _____ professor _____ Underlying Asset _____ grade on project _____ Type _____ put _____ Who is long _____ classmates _____ Who is short _____ sister _____ Underlying Asset _____ value of avoiding beating _____

d. Your 4531 professor keeps mumbling something about a "prisoner's dilemma game." Since several students do not appear to know the game to which he refers, he offers to add 1 point to the final exam score of anyone who can describe the game on the back of page 1 of this exam. While he may be somewhat forgetful, he keeps his word when he puts it in writing.

Type ___ call ___ Who is long ___ you ___ Who is short ___ prof ___ Underlying Asset ___ score on exam ___

10. (3 points) Someone offers to sell you a product for a given price, briefly (two sentences) describe how finance believes you should make on whether to purchase the item?

Most common correct answer, Present value of the future cash flows (benefit) – price of the item (cost). If benefit exceeds cost, then accept. Other answers dealt with real options.

11) Depreciation increases an asset's book value each year.

- a. True b. False

12. (3 points) What are the three components/decisions in creating dividend policy for a firm?

- a. Long run dividend payout ratio
b. how much to pay this quarter/year
c. from where do we get the cash to pay dividend.

13. (3 points) What is the optimal capital structure? Why?

Mix of debt and equity that minimizes WACC as this will maximize firm value and therefore shareholder's wealth.

Exam 3 Fall 2004 FINC 4531 Closed book

1) (9 points) The following series of cash flows occur for $t = 0, 1, 2, 3, 4, 5$, and 6, respectively: $-\$115,500, \$18,500, \$28,500, \$3,500, \$8,500, \$68,500$, and $\$108,500$. If the appropriate risk-adjusted discount rate is 8%:

What is the IRR? **17.33%**

What is the payback period? **4-5 years**

What is the Profitability Index? **1.43**

2. (5 points) You have the following cash flows, Year 0=0, Year 1=-800, Year 2 = +5000, Year 3 = -5000. If your cost of capital is 10%:

a. What is the correct NPV? **-351.62**

b. What is the correct IRR? **It does not exist, because of the two sign changes there are two IRRs. Neither IRR should be used for the accept/reject decision.**

3. (5 points) Consider the projects shown below. If you were hard capital rationed to \$110 for the initial investment, which project(s) should you choose?

Project:	A	B	C	D	E	F	G	H	I
Initial Cost:	25	30	15	40	45	40	25	20	5
NPV:	2.0	3.5	3.6	3.2	2.8	3.8	4.2	.7	.9

Best answer was CFBG with cost 110 and npv 15.1. I also accepted C, I, G, F, and A, with cost 110 and npv=14.5 with 1 point off.

4. (3 points) Suppose you buy some land for \$100,000 and immediately buy a European put option on the same piece of land with a strike price of \$110,000 and expiration one year from today. If in one year the price of the land is \$120,000, what is the intrinsic value of the option at expiration? **\$0**

5. (3 points) Suppose you can buy a call option on a piece of land. The land is currently valued at \$75,000. In one year, the land will either be worth 15% more or 8% less. The options strike price is \$74,000 and the riskless rate of return is 4%. What is the value of the call option today? **\$6145.02**

6. (3 points) Suppose you owned the land, and wanted to buy a put option, using the same inputs as above. How much is the put option, with exercise value of \$74,000, worth today? **\$2298.85**

7. (20 points) Your firm is considering replacing an existing machine with a new machine. The old machine is involved in a project that should last five more years. Here are the details of the old machine: 1) It was bought 2 years ago for \$20,000, 2) It was being depreciated using the 7-year MACRS rates, 3) It can be sold today for \$14,000, 4) If you decide not to replace the machine today, it can be sold for \$2,000 at the end of year 5. Here are details of the new machine: 1) It will cost \$40,000, 2) It will be depreciated as per the 5-year MACRS rates, 3) It can be sold at the end of year 5 for \$4,000. Current production is \$50,000 and this will increase to \$60,000 per year. The old machine had a Cost of Goods Sold (excluding depreciation and fixed costs) of 50%, while the new machine will reduce the Cost of Goods Sold (excluding depreciation and fixed costs) to 45%. Fixed costs, mainly annual maintenance costs, will increase from \$4,000 to \$8,000 per year. The increased efficiency will lower our inventory level by \$2000 and accounts payable by \$1500. Concurrent with purchase of the new machine, management will take out a \$25,000 five-year amortized bank loan with monthly payments. The quoted interest rate is 8%. The firm's tax rate is 40% and its weighted average cost of capital (WACC) is 13%. Management classifies projects as low risk, average risk, or high risk. Depending on the project's risk, the firm adjusts the cost of capital (up or down) by 2%. This project will be financed with bank debt estimated with a pre-tax cost of 10%. Since this is a product expansion, management feels that this is a low risk project.

(Fill in the blanks for 2 points) At a discount rate of ___ 11% ___ the NPV of this project is \$ ___ - 8476.98 ___ . For 18 points show how the previous two answers are correct.

CF0=-26202.4,co1=4200.8,co2=6520.8,co3=4757.6,co4=3528.8,c05=3528.8+4794.4.

Remaining questions were repeats of questions from Exams 1 and 2.