

BUSS207
Fall, 2016

Assignment 4
(Due by Dec. 14, 2016)

Please solve the following questions. If you prefer to work in a group in completing this assignment, you may do so. Groups are limited to a maximum size of 3 students. If you work in a group, the group will turn in one solution to the assignment and everyone in the group will receive the same grade on the assignment. If you work in a group, please make sure that you write down the names of all of your group members. If more than one group works together and turns in, substantially, the same work, this violates the rules of the course and the rules on academic integrity, and penalties will be assessed. The assignment is due at the beginning of class on the due date. Please show all the intermediate steps and calculations when solving the problems and state your assumptions (if any). Please type your answers.

1. Reserve Inc. is considering a project that will result in initial after-tax cash savings of \$6 million at the end of the first year, and these savings will grow at a rate of 3 percent per year indefinitely. The firm has a target debt-equity ratio of 0.70, a cost of equity of 16 percent, and an after-tax cost of debt of 6 percent. The cost-saving proposal is somewhat riskier than the usual project the firm undertakes; management uses the subjective approach and applies an adjustment factor of +2 percent to the cost of capital for such risky projects (meaning that the cost of capital for the project should be higher than the cost of capital for the firm by 2 percent). Under what circumstances should this Reserve Inc. take on the project?
2. BAFI Inc., imposes a payback cutoff of three years for its international investment projects. If the company has the following two projects available, should they accept either of them? (To answer this question, please apply both payback period and discounted payback period assuming the discount rate of 6%)

Year	Cash Flow (A)	Cash Flow (B)
0	-\$50,000	-\$70,000
1	30,000	8,000
2	15,000	20,000
3	10,000	30,000
4	10,000	500,000

3. Consider the following cash flows. Using MIRR with 8% discount rate, should we take this project?

Year	Cash Flow
0	-504
1	2,862
2	-6,070
3	5,700
4	-1,000

4. The ABC Inc., wants to set up a private cemetery business. According to the CFO, John Smith, business is “looking up”. As a result, the cemetery project will provide a net cash inflow of \$40,000 for the firm during the first year, and the cash flows are projected to grow at a rate of 7 percent per year forever. The project requires an initial investment of \$650,000. If ABC Inc., requires a 14 percent return on such undertakings, should the cemetery business be started?
5. Suppose you have been hired as a financial consultant to ABC Inc., a large, publicly traded firm that is the market share leader in radar detection systems (RDSs). The company is looking at setting up a manufacturing plant overseas to produce a new line of RDSs. This will be a five-year project. The company bought some land three years ago for \$6 million in anticipation of using it as a toxic dump site for waste chemicals, but it built a piping system to safely discard the chemicals instead. The land was appraised last week for \$9.25 million. The company wants to build its new manufacturing plant on this land; the plant will cost \$14 million to build. The following market data on ABC Inc.’s securities are current:

Debt: 10,000 8 percent coupon bond outstanding, 15 years to maturity, selling for 92 percent pf par; the bonds have a \$1,000 par value each and make semiannual payments.

Common stock: 250,000 shares outstanding, selling for \$70 per share; the beta is 1.4

Preferred stock: 10,000 shares of 6 percent preferred stock outstanding, selling for \$95 per share

Market Information: 8 percent expected market risk premium; 5 percent risk-free rate

ABC Inc. has enough internally generated funds and has been advised to fund the entire project using the internally generated funds only. ABC Inc.’s tax rate is 35 percent. The project requires \$900,000 in initial investment to get operational.

- A. Calculate the project’s initial Time 0 cash flow, taking into account all side effects.
- B. The new RDS project is somewhat riskier than a typical project for ABC, primarily because the plant is being located overseas. Management has told you to use an adjustment factor of +2 percent to account for this increased riskiness. Calculate the appropriate discount rate to use when evaluating ABC’s project.
- C. The manufacturing plant has a five-year useful life, and ABC uses straight-line depreciation. At the end of the project (i.e., the end of year 5), the plant can be scrapped for \$5 million. What is the annual depreciation of this plant?
- D. The company will incur \$350,000 in annual fixed costs. The plan is to manufacture 10,000 RDSs per year and sell them at \$10,400 per machine; the variable production costs are \$8,500 per RDS. What is the annual operating cash flow, OCF, from this project?
- E. Finally, ABC’s president wants you to throw all your calculations, assumptions, and everything else into the report for the chief financial officer; all he wants to know is what the RDS project’s IRR and NPV are. What will you report?