

NYU Stern School of Business
Corporate Finance
B40.2302.11, .12
Fall 2001

Problem Set #1

Due in class, October 3rd (.11 section) or 4th (.12 section).

Hard copy is strongly preferred, but if you can't attend class, you can email solution by 6pm October 4th to Keith Siilats [ksiilats@stern.nyu.edu].

Can work in teams of **up to three** students. Be sure to list all team members' names.

The questions are equal-weighted unless otherwise indicated.

- 1) List three advantages to organizing as a corporation.

- 2) What are the two reasons for discounting future cash flows?

- 3) State the NPV rule for capital budgeting.

- 4) The economy has three states: good, bad, and ugly (very bad). The first two states occur with probability .40 each, and ugly occurs with probability .20. You are considering an investment that pays off \$100 in the good state, \$50 in the bad state, and \$10 in the ugly state. The discount rate appropriate for these cash flows is 15%. What is the most you would be willing to pay for this project?

- 5) You can borrow and lend at 10% per year. You have an income of \$90,000 this year (count it as today's dollars) and \$120,000 next year (count it as one-year-away dollars). What is the most you can possibly consume this year? What is the most you can possibly consume next year? What is the present value of these two consumption plans? (Assume: you retire after next year, and there is no bankruptcy option.)

- 6) The NPV rule is valid for:
- (a) two period, certain cash flows
 - (b) many period, certain cash flows
 - (c) two period, uncertain cash flows
 - (d) many period, uncertain cash flows
 - (e) all of the above
- 7) Which of the following statements are true?
- (a) The process of discounting is the inverse of the process of compounding.
 - (b) Compound interest assumes that you are reinvesting the interest payments at the rate of return.
 - (c) Holding C_1 , r , and g constant, the present value of a perpetuity is greater than the present value of an annuity (assume $r > g > 0$ and $C_1 > 0$).
 - (d) Ending balances using simple interest are always greater than using compound interest (assume $r > 0$).
- 8) 12% compounded monthly is equivalent to an annually-compounded rate of ___?
A continuously-compounded rate of ___? When cash flows arrive in lumps at the end of each year, which rate is appropriate?
- 9) State the assumption required to use the formula for the present value of a growing perpetuity. State when the first cash flow is assumed to arrive.
- 10) For a steadily growing firm, explain how to estimate the dividend growth rate given the payout ratio and the return on equity. If the payout ratio is constant, and the return on equity is constant, explain how to estimate the earnings growth rate.
- 11) You are considering an acquisition. The firm in question just paid its annual dividend of 0.40 per share. Under your management, you expect dividends to grow at 5% in perpetuity, with a discount rate of 10%. What is the most you would be willing to pay for a share in this firm?
- 12) Explain two reasons for a high P/E ratio.
- 13) If a project has an IRR equal to the opportunity cost of capital, what is the NPV of the project? If it has an IRR $>$ opportunity cost of capital, what does the IRR rule recommend? Give an example in which this recommendation is incorrect.

14) If you have to do capital budgeting with a limited amount of capital available for initial investments, what is the simplest technique to use?

15) If the change in net working capital is positive, all else equal, should this be treated as a cash inflow or a cash outflow?

16) Solve BM 6th ed., Chapter 6, Practice Question #14. (Forecast cash flows for each year and calculate NPV. Assume the cash flows occur at the end of the year. Assume the company has other net income against which losses can be applied in the first year.)

17) The correlation between stock A's return and the market return is 0.6. The standard deviation of the return on A is 30% and the market standard deviation is 20%. Calculate Stock A's beta. Does Stock A have less or more market risk than the average security?

18) Efficient portfolios (select all that are true):

- (a) Offer the highest expected return for a given level of risk
- (b) Offer the lowest expected return for a given level of risk
- (c) Offer the lowest level of risk for a given expected return

19) If the beta of Microsoft is 1.26, the risk-free rate is 5.5% and the market risk premium is 8%, calculate the expected return for Microsoft using the CAPM.

20) Solve BM 6th ed., Chapter 9, Practice Question #9. (Use the CAPM in part (c))