

U-8-6

1. A firm currently has a debt-equity ratio of  $1/2$ . The debt, which is riskless, pays an interest rate of 6 percent. The expected rate of return on the equity is 12 percent. What would happen to the expected rate of return on equity if the firm reduced its debt-equity ratio to  $1/3$ ? Assume the firm pays no taxes. (15%)
2. The common stock of GTech company has a beta of 0.9. Currently, the Treasury bill rate is four percent and the market risk premium is estimated at eight percent. GTech capital structure is thirty percent debt paying a five percent interest rate, and seventy percent equity. What is GTech cost of equity capital? (10%) What is WACC? (10%) Assume GTech pays no taxes.
3. You are a consultant to a firm evaluating an expansion of its current business. The cash-flow forecast (in millions of dollars) for the project are:

Years	Cash flow
0	-100
1-10	+15

- (A) Based on the behavior of the firm's stock, you believe that the beta of the firm is 1.4. Assuming that the rate of return available on the risk-free investments is 4 percent and that the expected rate of return on the market portfolio is 12 percent, what is the appropriate discount rate for the project? (5%) What is the net present value of the project? (5%) Reject or accept the project? (5%) (Assuming the present value of \$1 per year for each of 10 years is 4.98)
- (B) Assuming the project IRR is 8.14%, what is cost of capital for the project? (5%) Does the accept-reject decision using IRR agree with the decision using NPV? (5%)
4. A stock will provide a rate of return of either -20% or +28%.
  - (A). If both possibilities are equally likely, calculate the expected return and standard deviation. (10%)
  - (B). If Treasury bills yield 4 percent, and investors believe that the stock offers a satisfactory expected return, what must the market risk of stock be? (10%)
5. Consider the following projects:
  - (A) Calculate the profitability index for A and B assuming a 22% opportunity cost of capital? (10%)
  - (B) Use the profitability index rule to determine which project you should accept (a) if you could undertake both and (b) if you could undertake only one? (10%)