CORPORATE FINANCE Exam 2016-2017 (Session 2)

Exam - Duration: 1h

PART I: Questions (No need to justify the multiple choice questions.)

1. What are the dark sides of debt (that is, if debt level is too high, what problems or inefficiencies may it cause)? State two of them. **(2 points)**

2. In a MM1 world (with risk-free debt and no taxes), all else equal (that is, two firms are identical except for their financial structures), **(2 points)**
   A. the value of a leveraged firm is higher than that of an unleveraged firm.
   B. the value of a leveraged firm is the same as that of an unleveraged firm.
   C. the value of a leveraged firm is lower than that of an unleveraged firm.

3. When comparing two mutually exclusive projects, the manager should undertake the project with **(2 points)**
   A. the highest internal rate of return.
   B. the highest net present value.
   C. Both the above.

PART II: Exercises:

Exercise 1: CAPM and financial structure (6 points)

Suppose a firm's market value is V=100m, and the market value of its debt is D=50m, which is considered risk-free. The equity beta of the firm is β_E=0.8, the risk-free rate is r_f=4%, and the market risk premium $E(r_m)-r_f$=10%. There is no tax.

a) What is the cost of equity k_E of the firm? **(2 points)**
b) Given the capital structure, what is the WACC (weighted cost of capital) of the firm? **(2 points)**
c) What discount rate should the manager use when making the investment decision of expanding the firm's existing business? **(1 point)**
d) Would you change your answer in question d) if the investment is about operating in a new industry? **(1 point)**

Exercise 2: Real options (8 points)

The manager is making an investment decision about whether the firm should buy the drilling rig and drill an oil well. The cost of the drilling rig costs \$500 today (t=0). In one year, the well is either a success (with probability 50%) or a failure (with probability 50%). If it is a success, it produces a constant annual cash flow of C_t=\$80, for all t=1, 2, 3, … , ∞. If it is a failure, it produces zero payoff. If the manager resells the drill rig after one year, the price is expected to be \$400. The discount rate is 10%.

a) Which real option is indicated in this case? **(1 point)**
b) If the project succeeds, what is the present value of future cash flows? (Notice that the question asks about the present value, not the net present value) **(1 point)**
c) If the project fails, what should the manager do? **(1 point)**
d) What is the NPV of the project? Will the manager invest? **(2 points)**
e) If the manager cannot resell the drill rig, will the manager invest? **(2 points)**
f) What is the value of this real option? **(1 point)**