

國立中央大學八十六學年度碩士班研究生入學試題卷

所別: 財務管理研究所 甲、丁組 科目:

財務管理

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1. "The values of outstanding bonds change whenever the going rate of interest changes. In general, short-term interest rates are more volatile than long-term interest rates. Therefore, short-term bond prices are more sensitive to interest rate changes than are long-term bond prices." Is this statement true or false? Explain. (10%)
2. A company is deciding whether to undertake an investment project which has the same risk as "the market" and an expected return of 20%. If the risk-free rate is 10% and the expected return on the market is 15%, the company should go ahead: (select the correct answer)
 - (a) Unless the company's beta is greater than 2.
 - (b) Unless the company's beta is less than 2.
 - (c) Whatever the company's beta.
 Explain your answer. (10%)
3. The president's current executive jet is not fully utilized. For the indefinite future, you judge that its use by other officers would increase direct operating costs by \$20,000 a year but would save \$50,000 a year in airfare bills. On the other hand, you believe that with increased use, the company will need to replace the current jet 3 years from now rather than 5 years as had been earlier anticipated. A new jet costs \$1.1 million and can always be replaced at that price. If only the president uses the jet, each new jet will need to be replaced every 6 years. However, if other officers use the jet, each new jet will need to be replaced every 4 years. Assume that the firm never pays taxes and the opportunity cost of capital is 12%. Should you try to persuade the president to allow other officers to use the plane? (15%)
4. you are asked to perform a capital budgeting analysis of two projects. Both will require an immediate cash outlay of \$1000. Both projects last one year and they both produce revenues at the end of the year amounting to \$1500 with certainty. Cash outflows at the end of the year, however, are risky. They are given below, along with the market rate of return, R_m :

State of Nature	Probability	End-of-Period Outflows		R_m
		Project A	Project B	
Great	1/3	\$500	\$600	20%
Average	1/3	400	400	10%
Horrid	1/3	300	200	0%

Since you are given the cash flows, there is no need to worry about taxes, depreciation, or salvage value. Note that the cash outflows of project B have

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higher variance than those of project A. Which project has greater NPV? Show your work and explain your reasoning. (15%)

5. (35%)

(1). BMW Co. and GM Co. are identical firms in all respects except for their capital structure. BMW is all-equity finance with \$250,000 in stock. GM uses both stock and perpetual debt; its stock worth is worth \$125,000 and interest rate on its debt is 10%. Both firms expect EBIT to be \$37,500. Ignore taxes.

- Ms. Brown owns \$25,000 worth of GM's stock. What rate of return is she expecting?
- Show how Ms. Brown could generate exactly the same cash flows and rate of return by investing in BMW and using homemade leverage?
- What is the cost of equity for BMW? What is it for GM?
- What is the WACC for BMW? For GM? What principle have you illustrated?

(2). Assume a firm's debt is risk-free, so that the cost of debt equals the risk free rate, R_f . Define β_A as the firm's asset beta, that is, the systematic risk of the firm's assets. Define β_E to be the beta of the firm's equity. Use the capital asset pricing model (CAPM) along with M&M Proposition II to show that $\beta_E = \beta_A \times (1 + D/E)$, where D/E is the debt/equity ratio. Assume that the tax rate is zero.

(3). You own 1,625 shares of stock in Microsoft Corporation. You will receive a 65-cent per share dividend in one year. In two years, Microsoft will pay a liquidating dividend of \$25 per share. The required return on Microsoft stock is 16%. What is the current share price of your stock (Ignoring taxes)? If you would rather have equal dividends in each of the next two years, show how you can accomplish this by creating homemade dividends. (Hint: Dividend will be in the form of an annuity).

6. (15%)

At the end of 1997, Lake Industries had 80,000 shares of common stock outstanding and had earnings available for common of \$160,000. Butler Company, at the end of 1997, had 10,000 shares of common stock outstanding and had earned \$20,000 for common shareholders. Lake's earnings are expected to grow at an annual rate of 5%, and Butler's growth rate in earnings should be 10% per year.

- Calculate earnings per share (EPS) for Lake Industries for each of the next 5 years, assuming that there is no merger.
- Calculate the next 5 year's earnings per share (EPS) for Lake if it acquires Butler at a ratio of exchange of 1:1.
- Compare your findings in (a) and (b), and explain why merger looks attractive when viewed over the long run.

