國 立 清 華 大 學 命 題 紙

九十二學年度 科技管理學院科管（所）(丁) [redacted] 組碩士班研究生招生考試

科目 財務管理 科號 6003 共 三 頁第 一 頁 *請在試卷【答案卷】內作答

Directions:

Please take fifty minutes to answer all of the following questions. Each question counts for the weight indicated in the parenthesis at the end of each question. (50 points)

1. Please explain the definition of IRR and also interpret the implication of the internal rate of return. (b). What are the economically independent investments and dependent investments? (c). Explain the weakness encountered in ranking the order of investments in terms of payback period method, and IRR approach. **(12 points)**

2. The net cash flows for projects X and Y are shown as below. The discount rate used for this company is at 10%. **(12 points)**

Year	Project X	Project Y
0	($10,000)	($10,000)
1	$2,000	$10,000
2	$12,000	$3,125

a. Calculate each project's NPV at the company's cost of capital.

b. Calculate each project's IRR.

c. Calculate Fisher's crossover rate (cutoff rate).

d. Suppose that these two projects are mutually exclusive investment, please answer that which project the company should take.

3. Show (Mathematically) that in a classic Modigliani and Miller type of world that the capital structure of the firm is irrelevant (without taxes). In addition, assume the government taxes corporation profits. Show how this changes the basic Modigliani and Miller framework and discuss the impact this has on corporate capital structure. **(6 points)**

4. AT&B has a debt-equity ratio of 3.0. Its r_{WACC} is 15 percent and its cost of debt is 12 percent. The corporate tax rate is 35 percent. **(9 points)**
   a. What is AT&B's cost of equity capital?
   b. What is AT&B unlevered cost of equity capital?
   c. What would be the weighted average cost of capital be if the debt-to-equity ratio was 0.80? What if it were 1.40?

5. Merry Manufacturing has a target debt-equity ration of 0.60. Its cost of equity is 24%, and its cost of debt is 15 percent. If the tax rate is 34%, what is Merry's WACC? Another one, Chess Corporation's, its weighted average cost of capital is 10.75%. The company's cost of equity is 15 percent and its pretax cost of debt is 8.75% percent. The tax rate is 38 percent. What is Chess Corporation's target debt-equity ratio? **(6 points)**

6. In the past recent years (1997-1999) prices of some publicly-traded securities have risen to the extent that their price-earnings rations are in excess of 100. Graham and Dodd in their classic Security Analysis said that individuals who purchased securities with P/E ratios greater than twenty were setting themselves up to lose money. Some economists today say that a new paradigm exists; that is, factors in the economy have changed so much that the rules of Graham and Dodd are no longer relevant. Do current security prices reflect a new paradigm, or are we in the midst of a price bubble? Identify the relevant factors. Comprehensively discuss and defend your position. **(5 points)**

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1.(14 points) On the basis of the risk and return relationship of the CAPM, supply the value of the 7 missing numbers in the following table?

Security	Expected return	β	Standard deviation of security return	Non-systematic risk
A	(1)	0.8	(2)	0.0081
B	19.0%	1.5	(3)	0.0036
C	15.0%	(4)	12%	0
D	7.0%	0	8%	(5)
E	16.6%	(6)	15%	(7)

Note: Nonsystematic risk is measured as the variance of the random error term in the market model.

2. (6 points) How does risk free interest rate affect option price? Explain.

3. The common stock of TSMC has been trading in a narrow range around $50 per share for months, and you believe it is going to stay in that range for the next three months. The price of a three-month put option with an exercise price of $50 is $4.

a (5 points) If the risk free interest rate is 4% per year, what must be the price of a three-month call options on TSMC stock with an exercise price of $50 if the option is at the money?

b. (9 points) What would be a simple option strategy using a put and a call to exploit your conviction about the stock's future movement? How far can the stock price move in either direction before you lose money?

4.(8 points) The two-month interest rates in Taiwan and the United States are 3% and 6% per year. The spot price of US dollar is 35 NTD/USD and the futures price for a contract deliverable in two months is 34.95 NTD/USD. What arbitrage opportunities does this create?

Note: NTD=NT dollar, USD=US dollar, $e^{0.005}=1.005013, e^{0.01}=1.01005$

5.Please answer either question 5a or question 5b only. Answering both questions will suffer 8 points of penalty.

(a). (8 points) Please comment the Chou Chin Industrial Co's (久津實業) insider trading scandal.

(b). (8 points) What are the advantages of investing the Exchange Traded Fund (ETF)?