

# 國立清華大學 107 學年度碩士班考試入學試題

系所班組別：計量財務金融學系碩士班 甲組(財務金融組)

考試科目 (代碼)：財務管理 (4904)

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一、 單選題(69%)，共 23 題，每題 3 分，答錯每題倒扣 1 分。

1. Which of the following statements regarding the cost-benefit analysis is NOT correct?

- A) The first step in evaluating a project is to identify its costs and benefits.
- B) In the absence of competitive markets, we can use one-sided prices to determine exact cash values.
- C) Competitive market prices allow us to calculate the value of a decision without worrying about the tastes or opinions of the decision maker.
- D) Because competitive markets exist for most commodities and financial assets, we can use them to determine cash values and evaluate decisions in most situations.

2. Consider the following prices from a McDonald's Restaurant:

Big Mac Sandwich	\$2.68
Large Coke	\$1.45
Large Fries	\$1.13

A McDonald's Big Mac value meal consists of a Big Mac sandwich, large Coke, and a large fries. Assume that there is a competitive market for McDonald's food items and that McDonald's sells the Big Mac value meal for \$4.59. Does an arbitrage opportunity exist and if so how would you exploit it and how much would you make on one value meal?

- A) Yes, buy a value meal and then sell the Big Mac, Coke, and fries to make arbitrage profit of \$0.67.
- B) No, no arbitrage opportunity exists.
- C) Yes, buy a Big Mac, Coke, and fries, then sell a value meal to make arbitrage profit of \$1.34.
- D) Yes, buy a Big Mac, Coke, and fries, then sell a value meal to make arbitrage profit of \$0.67.

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3. Investment X and Investment Y are both growing perpetuities with initial cash flow of \$100. Both investments have the same interest rate ( $r$ ) and cash flows. The present value of Investment X is \$5,000, while the present value of Investment Y is \$4,000. Which of the following is true?
- A) Investment X has a higher growth rate than Investment Y.
  - B) Investment X has a lower growth rate than Investment Y.
  - C) The answer cannot be determined without knowing the interest rate for both investments.
  - D) With the same initial cash flow and the same interest rate, Investment X and Investment Y should have the same present value.
4. What is the effective annual rate (EAR)?
- A) It is the interest rate that would earn the same interest with annual compounding.
  - B) It is the ratio of the number of the annual percentage rate to the number of compounding periods per year.
  - C) It is the interest rate for an  $n$ -year time interval, where  $n$  may be more than one year or less than or equal to one year (a fraction).
  - D) It refers to the cash flows from an investment over a one-year period divided by the number of times that interest is compounded during the year.
5. A firm issues 5-year bonds with a coupon rate of 4.7%, paid semiannually. The credit spread for this firm's 5-year debt is 1.2%. New 5-year Treasury notes are being issued at par with a coupon rate of 5.1%. What should the price of the firm's outstanding 5-year bonds be if their face value is \$1,000?
- A) \$932.28
  - B) \$12.00
  - C) \$1305.19
  - D) \$745.82
6. JRN Enterprises just announced that it plans to cut its dividend from \$3.00 to \$1.50 per share and use the extra funds to expand its operations. Prior to this announcement, JRN's dividends were expected to grow indefinitely at 4% per year

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and JRN's stock was trading at \$25.50 per share. With the new expansion, JRN's dividends are expected to grow at 8% per year indefinitely. Assuming that JRN's risk is unchanged by the expansion, the value of a share of JRN after the announcement is closest to \_\_\_\_\_.

- A) \$19.32
- B) \$12.75
- C) \$38.63
- D) \$25.50

7. Which of the following is a disadvantage of the Net Present Value rule?

- A) can be misleading if inflows come before outflows
- B) not necessarily consistent with maximizing shareholder wealth
- C) ignores cash flows after the cutoff point
- D) relies on accurate estimate of the discount rate

8. Bubba Ho-Tep Company reported net income of \$290 million for the most recent fiscal year. The firm had depreciation expenses of \$100 million and capital expenditures of \$150 million. Although it had no interest expense, the firm did have an increase in net working capital of \$30 million. What is Bubba Ho-Tep's free cash flow?

- A) \$10 million
- B) \$210 million
- C) \$270 million
- D) \$570 million

9. Which of the following is the best statement of the efficient markets hypothesis?

- A) Investors with information that a stock had a positive net present value (NPV) will buy it, while investors with information that a stock had a negative net present value (NPV) will sell it.
- B) Investor's decisions are dependent on complete current information of a firm's cash flows and accurate predictions of future cash flows.
- C) Competition between investors works to make the net present value (NPV) of all

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trading opportunities zero.

D) A share's price is the aggregate of the information of many investors.

10. A portfolio has 30% of its value in IBM shares and the rest in Microsoft (MSFT). The volatility of IBM and MSFT are 35% and 30%, respectively, and the correlation between IBM and MSFT is 0.5. What is the standard deviation of the portfolio?

- A) 23.61%
- B) 27.78%
- C) 25.72%
- D) 31.56%

11. You observe that AT&T stock and the S&P 500 have the following weekly returns:

<u>Week</u>	<u>AT&amp;T return</u>	<u>S&amp;P 500 return</u>
1	0.005	0.001
2	0.010	0.005
3	-0.003	-0.005
4	-0.005	-0.001

If this pattern of stock returns is typical of AT&T stock, and you calculated a beta against the S&P 500, which of the following is true?

- A) AT&T's beta is negative.
- B) AT&T's beta is zero.
- C) AT&T's beta is positive.
- D) Cannot be determined from information given.

12. Assume the total market value of General Motors (GM) is \$10 billion. GM has a market value of \$6 billion of equity and a face value of \$12 billion of debt. What are the weights in equity and debt that are used for calculating the WACC?

- A) 0.30, 0.70

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B) 0.60, 0.40

C) 0.40, 0.60

D) cannot be determined

13. A firm has outstanding debt with a coupon rate of 5%, ten years maturity, and a price of \$1,000. What is the after-tax cost of debt if the marginal tax rate of the firm is 35%?

A) 1.75%

B) 2.9%

C) 3.25%

D) 3.4%

14. Suppose you enter into an interest rate swap where you are receiving floating and paying fixed. Which of the following is true?

(i) Your credit risk is greater when the term structure is upward sloping than when it is downward sloping.

(ii) Your credit risk is greater when the term structure is downward sloping than when it is upward sloping.

(iii) Your credit risk exposure increases when interest rates decline unexpectedly.

(iv) Your credit risk exposure increases when interest rates increase unexpectedly.

A) only (i)

B) only (ii)

C) (ii) and (iii)

D) (i) and (iv)

15. The price of a stock is \$64. A trader buys 1 put option contract on the stock with a price of \$60 when the option price is \$10. When does the trader make a profit?

A) When the stock price is below \$60

B) When the stock price is below \$64

C) When the stock price is below \$54

D) When the stock price is below \$50

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16. If Company A can borrow at 10% fixed or LIBOR+1.5%, and Company B can borrow at 6% fixed or LIBOR+0.5%. What are the total joint savings available using a swap?
- A) 5%  
B) 3%  
C) 18%  
D) 2%
17. Consider a six month put option on a stock with a strike price of \$32. The current stock price is \$30 and over the next six months it is expected to rise to \$36 or fall to \$27. The risk-free interest rate is 6%. What is the value of the put option?
- A) 2.75  
B) 2.11  
C) 4.44  
D) 1.68
18. Suppose that a portfolio worth £6,500,000 and the market is FTSE100 (UK market index). The futures index is 1,100 and each futures contract is on £500 times the index. If the value of the FTSE100 is currently 1,050 and the risk free rate is 4% per annum. How many Futures contracts are required to hedge this portfolio if the portfolio has beta of 1.5?
- A) 12  
B) 18  
C) 13  
D) 20
19. Ten years ago, your company purchased a machine used in manufacturing for \$150,000. You have learned that new machine is available that offers many advantages and you can purchase it for \$150,000 today. It will be depreciated on a straight-line basis over 10 years and has no salvage value. You expect that the new machine will produce a gross margin (revenues minus operating expenses other than depreciation) of \$50,000 per year for the next 10 years. The current machine is

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expected to produce a gross margin of \$20,000 per year. The current machine is being depreciated on a straight-line basis over a useful life of 5 years, and has no salvage value, so depreciation expense for the current machine is \$10,000 per year. The market value today of the current machine is \$60,000. Your company's tax rate is 35%, and the opportunity cost of capital for this type of equipment is 10%. What is the NPV of this project?

- A) \$63500
- B) \$20000
- C) \$86500
- D) \$13956

20. You are looking to buy a car and you have been offered a loan with an APR of 12%, compounded monthly. What is the true monthly rate of interest?

- A) 12%
- B) 12.68%
- C) 6%
- D) 6.12%

21. Jenna considers saving \$5000 from her salary every year. She is considering putting her savings in a stock fund. She just turned 30 and has a long way to go until retirement at age 65. The fund she is looking at has earned an average of 9% over the past 15 years and could be expected to continue earning this amount, on average. Once she retires. She plans to take out all the money from the stock fund when she is at 65, and she saves the money into a bank. She expects to earn 1% interest rate in that bank. How much could she withdraw each year in retirement? (Assume she begins withdrawing the money from the account in equal accounts at the end of each year once her retirement begins.)

- A) \$520997
- B) \$12580
- C) \$125800
- D) \$37576

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22. Suppose Tecnor Industries will have free cash flows next year of \$30 million. Its weighted average cost of capital is 10%, and you expect its free cash flows to grow at a rate of approximately 5% per year, though you are somewhat unsure of the precise growth rate. Tecnor has 10 million shares outstanding, no debt, and \$20 million in cash. If Tecnor's stock is currently trading for \$55.33 per share, how would you update your beliefs about its dividend growth rate? (Hint: Use the discounted free cash flow model to evaluate a stock).
- A) Lower our expectations for the FCF growth rate from 5%.
  - B) Increase our expectations for the FCF growth rate from 5%.
  - C) Keep our expectations for the FCF growth rate from 5%.
  - D) Not enough information to determine.

23. You are analyzing the leverage of two firms and you note the following (all values in millions of dollars). Which firm has more difficult meeting its debt obligations?

	Debt	Book Equity	Price per Share	Number of Shares (millions)	Operating Income	Interest Expense
Firm A	500	300	60	20	100	50
Firm B	80	40	10	4	8	7

- A) Firm A
- B) Firm B
- C) Both firms have the same difficulties meeting debt obligations.
- D) Not enough information to determine.



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二、 計算題與問答題(31%): 所有的計算題答案請以小數點後二位四捨五入為主 (例如：xx.xx 或 xx.xx%)

1. Adam considers buying a car. The car is \$35,000. The dealer has given him three payment options:

1. *Zero percent financing.* Make a \$5,000 down payment from his savings and finance the remainder with a 0% APR loan for 48 months. Adam has more than enough cash for the down payment, thanks to generous graduation gifts.
2. *Rebate with no money down.* Receive a \$5,000 rebate, which he would use for the down payment (and leave his savings intact), and finance the rest with a standard 48-month loan, with an 8% APR. He likes this option, as he could think of many other uses for the \$5,000.
3. *Pay cash.* Get the \$5,000 rebate and pay the rest with cash. While Adam does not have \$35,000, he wants to evaluate this option. His parents always paid cash when they bought a family car; Adam wonders if this really was a good idea.

Adam needs to determine his best options.

Suppose that Adam had plenty of cash in the bank so that he could easily afford to pay cash for the car without running into debt now or in the foreseeable future. If his cash earns interest at a 12% APR (based on monthly compounding) at the bank,

- (i) What would be his best purchase option for the car?

(得分: 11%)

- (ii) The 12% APR is Adam's time value of money. If his time value of money decreases, discuss how a decreased time value of money could affect his decision among these three options.

(得分: 10%)

2. Discuss the concept why investors would NOT demand a higher return from stocks with a higher volatility.

(得分: 10%)