

第一部分：投資學（共五十分。配分如各題標示）

壹、單選題（每小題三分）

1.

A class of Efficient Market Hypothesis that implies all public information is calculated into a stock's current share price. This is

- A) weak form efficiency
- B) semi-strong form efficiency
- C) strong form efficiency
- D) super form efficiency.

2.

Which bond is more sensitive to interest rate change

- A) 1-year zero coupon bond
- B) 30-year zero coupon bond
- C) 1-year bond with 10% annual coupon rate
- D) 30-year bond with 10% annual coupon rate

3.

Which variables have a positive impact on call price:

- I. Stock price
 - II. Exercise price
 - III. risk free rate
 - IV. maturity
 - V. volatility
- A) All of them
 - B) I, III, IV, and V
 - C) III, IV, and V
 - D) IV and V

4.

Given other things equal, which of the following has the most effective diversification:

- A) risky assets' returns are uncorrelated.
- B) risky assets' returns are positively correlated.
- C) risky assets' returns are high.
- D) risky assets' returns are negatively correlated.

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5.

When we increase the number of assets in the portfolio, the total variance of a portfolio approaches

- A) 0.
- B) N , the number of assets in the portfolio
- C) the variance of the market portfolio.
- D) infinity

6.

Consider the multifactor APT with two factors. Stock A has an expected return of 10.89%, a beta of 0.9 on factor 1, and a beta of 1.1 on factor 2. The risk premium on the factor 1 portfolio is 3.2%. The risk-free rate of return is 3.5%. What is the risk-premium on factor 2 if no arbitrage opportunities exist?

- A) 9.26%
- B) 3%
- C) 4.1%
- D) 0.6%
- E) 4.51%

7.

There are three bonds:

X: with a 5-year-to-maturity, a 10% yield to maturity and a 10% coupon rate.

Y: with a 5-year-to-maturity, a 12% yield to maturity and a 10% coupon rate.

Z: with a 5-year-to-maturity, a 10% yield to maturity and a 12% coupon rate.

- I. Bond X has shorter duration than bond Y does.
 - II. Bond Y has shorter duration than bond X does.
 - III. Bond X has shorter duration than bond Z does.
 - IV. Bond Z has shorter duration than bond X does.
- A) I and II are correct.
 - B) II and III are correct.
 - C) I and III are correct
 - D) II and IV are correct.
 - E) All are incorrect

8.

Peter held a long position in corn futures and he failed to meet the obligations of the futures contract. Who is hurt by this failure?

- A) the counter party who hold the short position.

- B) the corn farmer.
- C) the clearinghouse.
- D) the Exchange
- E) the broker

9.

A portfolio has an expected rate of return of 20% and standard deviation of 5%. A stock has an expected rate of return of 30% and standard deviation of 50%. T-Bills offer a safe rate of return of 7%. Which would a risk neutral investor prefer to invest?

- A) the portfolio
- B) the stock
- C) the T-bills
- D) cannot be decided

10.

A security has an expected rate of return of 8% and a beta of 0.9. The market premium is 3% and the risk-free rate is 4%. The alpha of the stock is

- A) 1.3%.
- B) -1.7%.
- C) 6.7%.
- D) 2.7%.

貳、計算題及簡答題

1.

Consider the following monthly market index that does not involve any dividends:

Month	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15
Index	8,665.34	8,174.92	8,181.24	8,554.31	8,320.61	8,338.06
Return						

- a. Please calculate monthly return based on the definition of simple (discrete) returns, not on the definition of continuous returns. (二分)
- b. Calculate the expected return of market index, the arithmetic average and the geometric average. (四分)
- c. By applying the Capital Asset Pricing Model, what is the expected return of stock A whose beta is 0.8? Assuming the risk free rate is 2% and the expected market return is the arithmetic average you calculated in problem b. (二分)

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- 2.
- What is an Exchange-traded fund? (二分)
 - Please describe the advantages they have over mutual funds. (二分)
 - What are disadvantages? (二分)
- 3.
- Please describe five differences between hedge funds and mutual funds. (六分)

第二部分：財務管理（共五十分。配分如各題標示）
（各題答案均須寫完整計算式，否則不予計分）

壹、計算題

1.

David Corporation began operating in 2000. The company lost money in its first four years of operations but had an operating profit in the following two years. The company has no debt. The company's operating income (EBIT) for its first six years are as follows:

Year	EBIT
2000	-\$2,300,000
2001	-\$3,300,000
2002	-\$2,000,000
2003	-\$500,000
2004	\$4,000,000
2005	\$8,200,000

Assume that the corporate tax rate is 35% during these six years. What is David Corporation's tax liability for 2005? (Further assume that the company can take the full advantage of the carry-back and carry forward provisions and all provisions are applicable). (共六分)

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2.

Leslie plans to invest some money in a bank account. Please advise her which of the following bank account should she invest and why? (Assume 365 days a year) (請四捨五入至小數點後第 4 位，否則不予計分) (共六分)

- a. Bank 1 pays 9% nominal interest with annual compounding
- b. Bank 2 pays 9% nominal interest with monthly compounding
- c. Bank 3 pays 8.8% nominal interest with daily compounding
- d. Bank 4 pays 8.8% nominal interest with quarterly compounding
- e. Bank 5 pays 9% nominal interest with quarterly compounding

3.

Orange Company has just taken out a 1-year installment loan for \$800,000 at a nominal rate of 13% with equal end-of-month payments. Find the amount of beginning balance, total payment, interest paid, principal paid, and ending balance for the 8th month scheduled payment. Also, what percentage of the 8th monthly payment will go toward the repayment of principal? (請換算成百分比形式與四捨五入至小數點後第 2 位，如 XX.XX%，否則不予計分) (共六分)

4.

A premium bond with semi-annual interest payments, all else equal, would be priced _____ than one with annual interest payments. Please explain with an example. (共四分)

5.

A stock currently sell for \$66 per share, and the required return on the stock is 8%. Assuming a growth rate of 4%, please calculate the stock's last dividend paid. (請四捨五入至小數點後第 2 位，否則不予計分) (共四分)

6.

NTU Corp. just invests in a new product line, and a marketing survey was conducted one year ago for \$50,000 to understand customers' need. The company currently manufactures several lines of snow skiing apparel. The new product is expected to generate sales less cost of goods sold of \$1,500,000 per year for the next five years. The company further expects that during this five-year period, the company will lose \$335,000 per year in sales less cost of goods sold on their existing lines of longer ski pants as a result of the introduction of the new product line. The new line requires no additional equipment or space in the plant and can be produced in the same manner as

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the existing apparel products. The new project however requires that the company spends an additional \$99,000 per year on insurance in case customers sue for frostbite. Also, a new marketing director is hired to oversee the line at \$150,000 per year in salary. Because of the different construction of the shorts, an increase in inventory of \$60,800 is required initially. If the marginal tax rate is 35%, please calculate the incremental after tax cash flows for Year 1 through 5. (共六分)

7.

Consider two mutually exclusive projects X and Y with identical initial outlays of \$100,000 and both projects last for 5 years. Project X is expected to produce free cash flow of \$34,999 each year. Project Y is expected to produce a single after-tax net cash flow of \$250,000 in year 5. The cost of capital is 16 percent.

- Calculate the net present value for each project.
- Calculate the internal rate of return for each project.
- What problem of IRR do you foresee in this example when selecting one of the projects?
- Given problem mentioned in point C, what project should be selected?

(每題各兩分。四小題共八分)

8.

Curry Corp. has \$1 million of new debt to finance a project with a coupon rate of 11%, paid quarterly and has a par value of \$1,000. The bonds will mature in 15 years and are priced at \$900, net of flotation costs. If the firm's tax rate is 38%, what is the cost of debt to Curry Corp.? (請四捨五入至小數點後第 4 位，否則不予計分) (共六分)

9.

Steven Corp. is analyzing two capital investments. The CFO insists on examining the risk of the projects in terms of their effect on the risk of a well-diversified portfolio. The standard deviation of Projects X and Y are 10.5% and 9.9%, respectively. The expected return for the well-diversified portfolio is 16% with a standard deviation of 5.1%. The correlation coefficient between Project X and the portfolio is 0.59 while the correlation coefficient between Project Y and the portfolio is 0.89. The expected returns are 19.1% for Project X and 17.3% for Project Y. the risk-free rate is 3.4%. Which investment(s) should Steven Corp. accept or reject? NOTE: You need to state the decisions for both projects. (共四分)

試題隨卷繳回