

※ 注意：全部題目均請作答於試卷內之「非選擇題作答區」，請標明題號依序作答。

第一部分：投資學（共五十分。配分如各題標示）

壹、單選題共八題，每題三分。

1. In a typical “firm commitment” underwriting arrangement the investment banking firm
 - I) sells shares to the public via an underwriting syndicate.
 - II) purchases the securities from the issuing company.
 - III) assumes the full risk that the shares may not be sold at the offering price.
 - IV) agrees to help the firm sell the issue to the public but does not actually purchase the securities.
 - A) I, II, and III
 - B) I, III, and IV
 - C) I and IV
 - D) II and III
 - E) I and II
2. Your opinion is that ABC Corp. has an expected rate of return of 0.0952. It has a beta of 0.92. The risk-free rate is 0.04 and the market expected rate of return is 0.10. According to the CAPM, this security is
 - A) underpriced by 27.9%.
 - B) overpriced by 3.5%.
 - C) fairly priced.
 - D) cannot be determined from data provided.
 - E) underpriced by 3.4%.
3. Consider the multifactor APT. The risk premiums on the Factor 1 and Factor 2 portfolios are 6% and 4%, respectively. The risk-free rate of return is 4%. Stock A has an expected return of 16% and a beta on Factor 1 of 1.3. What is Stock A's beta on Factor 2?
 - A) 0.875
 - B) 1.050
 - C) 0.050
 - D) 2.050
 - E) 0.375
4. You purchased an annual interest coupon bond one year ago with 6 years remaining to maturity at the time of purchase. The coupon interest rate is 10% and par value is \$1,000. At the time you purchased the bond, the yield to maturity was 8%. If you sold the bond after receiving the first interest payment and the bond's yield to maturity had changed to 7%, your annual total rate of return on holding the bond for that year would have been _____.
 - A) 7.08%
 - B) 11.27%
 - C) 8.00%
 - D) 11.95%
 - E) 11.35%

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5. Bond analysts might be more interested in a bond's yield to call if
- A) the bond's yield to maturity is insufficient.
 - B) interest rates are expected to rise.
 - C) the investor only plans to hold the bond until its first call date.
 - D) the firm has called some of its bonds in the past.
 - E) interest rates are expected to fall.
6. Conventional theory assumes that utility functions are _____ whereas prospect theory assumes that utility functions are _____.
- A) concave and defined in terms of wealth; s-shaped (convex to losses and concave to gains) and defined in terms of losses relative to current wealth
 - B) concave and defined in terms of gains relative to current wealth; s-shaped (convex to losses and concave to gains) and defined in terms of losses relative to current wealth
 - C) s-shaped (convex to losses and concave to gains) and defined in terms of losses relative to current wealth; concave and defined in terms of wealth
 - D) s-shaped (convex to losses and concave to gains) and defined in terms of wealth; concave and defined in terms of losses relative to current wealth
 - E) convex and defined in terms of wealth; concave and defined in terms of gains relative to current wealth
7. The stock of NTU Corp. currently sells for \$38. A one-year call option with strike price of \$45 sells for \$9, and the risk free interest rate is 4%. What is the price of a one-year put with strike price of \$45?
- A) \$9.00
 - B) \$14.27
 - C) \$17.46
 - D) \$12.50
 - E) \$15.73
8. Suppose you purchase one share of the stock of XYZ Inc. at the beginning of year 1 for \$36. At the end of year 1, you receive a \$2 dividend per share and buy one more share for \$30. At the end of year 2, you receive again a \$2 dividend per share, and sell the shares for \$36.45 each. What is the dollar-weighted return on your investment?
- A) 10.31%
 - B) 6.81%
 - C) 10.50%
 - D) 13.93%
 - E) 12.35%

貳、計算證明及簡答題共三題，配分如各題標示。

1. Consider an equally weighted portfolio with n securities. Show the limitation of portfolio diversification; in other words, what is the total risk of the portfolio when n gets very large.
(共八分。答案須寫證明式，否則不予計分)

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2. An option has two periods before expiration. The underlying stock price is \$100, and the exercise price is \$85. The stock price would either go up by 10% or go down by 15%. The risk-free rate is 0.03 (3%). Assume that the stock pays a dividend at the end of the first period with \$5. Compute the value of the European call option regarding this binomial tree.
(共八分。答案須寫計算式，否則不予計分)
3. What does the term “anomaly” mean in market efficiency? Give one example of market anomaly and explain why it is considered as an anomaly.
(共十分。答案限定十行，超過者不予計分)

第二部分：財務管理（共五十分。配分如各題標示）

壹、選擇題與填充題（第一、二題每題2分，第三、四題每題3分。共10分）

1. Assume that a noncallable 10-year T-bond has a 12% annual coupon, while a 15-year noncallable T-bond has an 8% annual coupon. Assume also that the yield curve is flat, and all Treasury securities have a 10% yield to maturity. Which of the following statements is CORRECT?
- A) If the yield to maturity on both bonds remains at 10% over the next year, the price of the 10-year bond would increase, but the price of the 15-year bond would fall.
- B) If interest rates decline, the prices of both bonds would increase, but the 10-year bond would have a larger percentage increase in price.
- C) The 10-year bond would sell at a discount, while the 15-year bond would sell at a premium.
- D) The 10-year bond would sell at a premium, while the 15-year bond would sell at par.
- E) If interest rates decline, the prices of both bonds would increase, but the 15-year bond would have a larger percentage increase in price.
2. Which of the following statements are CORRECT?
- A) If you have a series of cash flows, each of which is positive, you can solve for I (interest rate), where the solution value of I causes the PV of the cash flows to equal the cash flow at Time 0.
- B) If you have a series of cash flows, and CF_0 is negative but each of the following CF_t is positive, you can solve for I , but only if the sum of the undiscounted cash flows exceeds the cost.
- C) To solve for I , one must identify the value of I that causes the PV of the positive CF_t to equal the absolute value of the PV of the negative CF_t . This is, essentially, a trial-and-error procedure that is easy with a computer or financial calculator but quite difficult otherwise.
- D) If you solve for I and get a negative number, then you must have made a mistake.
- E) If CF_0 is positive and all the other CF_t are negative, then you can still solve for I .
3. NTU corporation is purchasing a new machine to replace an existing one. The new machine costs

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\$8,000 and will require an additional cost of \$1,000 for installation and modification. It will be depreciated using simplified straight line depreciation over five years. The new machine operates much faster than the old machine and with better quality. Consequently, sales are expected to increase by \$2,100 per year for the next five years. While it is faster, it is fully automated and, hence, will result in increased electricity costs for the firm by \$700 per year. However, it will save \$850 in labor costs per year. The old machine is 30 years old and has already been fully depreciated. If the firm's marginal tax rate is 30%, the after tax incremental cash flows for the new machine for years 1 through 5 should be _____

4. Bob Company is going to pay a dividend of \$8 during the coming year. Dividends are expected to grow far into the future at 7%. The market participants evaluate future market variance to be 0.0016 and the covariance of returns for Bob Company and the market as 0.00352. If the required market return is 14% and the risk-free rate is 6%, at what price should the stock of Bob Company sell? _____ (請四捨五入至小數點後第 4 位，否則不予計分)

貳、計算題及簡答題 (第 2、4 題每題 5 分，第 1、3、5 題每題 10 分。共 40 分)
(各題答案均須寫計算式，否則不予計分)

1. Ann is extremely risk averse and would like to form a portfolio with least variance. There are two securities in the market and the correlation between these two securities A and B is -1. The return variances of these two securities are 0.81 and 0.16, respectively. Please advise Ann to form the portfolio with these two securities.
2. Lisa Company is planning its operations for the coming year, and is trying to forecast the company's additional funds needed (AFN). However, the company is thinking about the impact of a change in the payout ratio from the 10% that was used in the past to 40%, which the firm's investment bankers have recommended. Based on the AFN equation, by how much would the AFN for the coming year change if Lisa Company increased the payout from 10% to the new and higher level? (Information for use in the forecast are shown below. All dollars are in millions.)

Last year's sales = S_0	\$300.0	Last year's accounts payable	\$50.0
Sales growth rate = g	30%	Last year's notes payable	\$15.0
Last year's total assets = A_0^*	\$500.0	Last year's accruals	\$20.0
Last year's profit margin = PM	20.0%	Initial payout ratio	10.0%

3. Kevin Corporation has a target debt-equity ratio of 2/3. The required rate of return on Kevin Corporation's debt is 10% (no flotation costs of debt). Kevin Corporation follows a strict 50% payout policy. The company had dividends of \$2.00 per share four years ago. Next year, the company expects to have dividends of \$3.22 per share. The same dividend growth rate is expected far into the future. Kevin Corporation currently has 500,000 shares of common stock outstanding. The flotation costs for new common stock is 5% of the present stock price of \$20 per share. The tax rate is 35%. (各算式請四捨五入至小數點後第 4 位，否則不予計分)

- a. Assuming no new common stock is sold, please calculate the weighted average cost of capital. (5 分)
- b. Suppose Kevin Corporation has the following investment opportunity:

	Amount	Internal rate of return
Project A	\$900,000	29.9%
Project B	\$500,000	17.9%
Project C	\$400,000	21.3%
Project D	\$200,000	12.1%
Project E	\$300,000	15.6%
Project F	\$300,000	18.8%

Which projects should be accepted? (5 分)

4. Please explain the major differences between capital market line and security market line. (答案限定五行，超過不予計分)
5. Laura Company wants to invest in a new project that is completely different from its current business. The new project will be financed by 20% debt and 80% equity. There are four companies that their business environments are closely related to its new project with the following information:
- Firm 1 has an equity beta of 0.75 and is financed by 55% debt and 45% equity
 Firm 2 has an equity beta of 0.79 and is financed by 15% debt and 85% equity
 Firm 3 has an equity beta of 1.25 and is financed by 37% debt and 63% equity
 Firm 4 has an equity beta of 1.11 and is financed by 11% debt and 89% equity
- In addition, we assume the 1-year T-bill is 3% per year and the expected market return is 10% per year. Laura Company locates in a tax-free place and its equity beta based on its current business is 2.5. Please find out the expected return of its new project. (各算式請四捨五入至小數點後第 4 位，否則不予計分)

試題隨卷繳回