

淡江大學九十二學年度碩士班招生考試試題

111-1

系別：財務金融學系

科目：財 務 管 理

准帶項目請打「○」否則打「×」
○ 簡單型計算機

本試題共：2 頁

共有 10 題，每題 10 分，滿分 100。

本試題雙面印製

- Zebra company has just paid a dividend and is considering a dividend of \$1.25 per share at the end of 1 year. The present market price per share is \$20, and stock price appreciation of 5% per annum is expected.
 - If the required return on equity were 12% and we lived in a no-tax world, what would be the market price per share at the end of the year using the M-M model?
 - What would be the price if no dividend were paid?
 - An investor is in a 30% tax bracket for ordinary income but a 20% effective tax rate for capital gains. If he were to hold the stock 1 year, what would be his expected after-tax return in dollars for each share held?
- Standard deviation (S.D.) of a security is often used to measure the risk of investment. S.D. is also an important input for the Black-Scholes option pricing model. Suppose the return of a security is 0.3% per month for the past 10 months.
 - Using the return data in the past 10 months, calculate the S.D. of this security.
 - Does the S.D. violate the usual risk-return relationship? (Notice that the security has positive return.) Does this security exist in the real world? If yes, what type of security it is?
- Describe the logic behind the "pecking order" financing process. Also show the usual "orders" of finance and the reason for each "order."
- Assume that the markets are perfect in the sense of being free from transaction costs and restrictions on short selling. The spot price of silver is \$15 per ounce. Current interest rate, which is the only cost of carry, is 10% per year. If the futures price of silver contract to be delivery in one year is \$20 per ounce, there is large mispricing in the futures contract. Show the completed transactions that an arbitrageur would do to gain the risk free profit. Also show the final profit and the cash flow incurred in each transaction.
- Stock price of ABB is \$100. A European call based on one share of stock ABB has the following data: exercise price: \$100, risk-free rate: 0.08, $\sigma = 0.3$, date to expiration: 180 days, option price: \$10.3044, delta: 0.6151, theta: -12.2607, gamma: 0.0181. An investor holding one share of ABB and wish to hedge the risk using European call needs to perform delta hedge.
 - Construct a delta-hedged portfolio using European call.
 - If the stock price drops from \$100 to \$90 and the call price also drops to \$5.12, how much the portfolio loss/gain?

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- c. Briefly explain why the delta hedge can not eliminate all risk.
- 6. Mortgage-backed securities (MBS) have become one of the major fixed income markets in the U.S. since 1970s. Describe the securitization process of MBS (how mortgage loans are turned into MBS), the important institutions involved in the process, and the functions of each institution.
- 7. For a coupon paying bond, the yield to maturity y is measured by solving the following equation given the current bond price P . It is well known that the yield to maturity measure assumes all future coupon incomes are reinvested at the rate of y .

$$P = \frac{C}{1+y} + \frac{C}{(1+y)^2} + \dots + \frac{M}{(1+y)^n}$$

Please show "why" yield to maturity calculated in above equation implies that all coupons are reinvested in the same rate y . You may use a hypothetical example to demonstrate your answer.

- 8. Allowing for both risk-free (r_f) borrowing and lending, the efficient set of Markowitz framework is a straight line from the risk-free rate to the tangency to the curved efficient frontier. Now assume that investors can at best borrow at a rate (r_B) higher than the risk-free rate and lend at a rate (r_L) lower than the risk-free rate. Use graph to show the new efficient set and explain the differences from the efficient set under risk-free assumption.
- 9. Explain the "separation theorem" suggested by the Capital Market Line. Also state the implications to portfolio managers under the separation theorem.
- 10. As a bond investor, how do you choose from the three bonds in below if you expect the interest rates to decrease? Explain your decision.
 - (a) a T-bond with coupon rate 10% and 15 years to maturity
 - (b) a T-bond with coupon rate 7% and 20 years to maturity
 - (c) a T-bond with coupon rate 10% and 20 years to maturity