

淡江大學九十學年度碩士班招生考試試題

系別：財務金融學系

科目：財 務 管 理

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共有 10 題，每題皆為 10 分，滿分為 100。

- [10] Assuming non-risky debt and ignoring corporate and personal taxes, prove that the relationship between the levered equity beta and the unlevered equity beta is as follows:

$$B_L = B_{UN} \left(1 + \frac{B}{S} \right)$$

B_L = levered equity beta

B_{UN} = unlevered equity beta

B = market value of debt

S = market value of stock

- [10] Same a "Problem 1", but assume T_C is the corporate tax rate. Demonstrate the relationship between B_L and B_{UN} in the present of corporate taxes.
- [10] Suppose that a closely held company AAA whose stock is not publicly traded needs to estimate its cost of capital. The company has a debt/equity ratio of 0.75 and a marginal tax rate of 34%. You have located another company BBB that is very similar to AAA in terms of operations, and their publicly traded stock reflects a beta of 0.90. The debt/equity of the company BBB is 0.5. The current yield on T-Bills is 8% and the expected return on an average risk stock portfolio is 12.5%. Estimate the cost of equity for company AAA.
- [10] The concept of duration has taken on special meaning for financial decision making in the last decade. In forming a portfolio of stocks and bonds, is duration a complete measure of risk? What are the potential limitations or shortcomings in using duration as a comprehensive risk measurement (or proxy)?
- [10] The current price of sugar is 12 cents per pound. What is the forward price of sugar to be delivered in 5 months? Assume that the carrying cost of sugar is 0.1 cent per pound per month, to be paid at the beginning of the month, and the interest rate is constant at 9% per annum.
- [10] Suppose a portfolio consists of only two assets A and B. The correlation coefficient ρ between asset A and B is 0.1, and other data are given below:

Asset	Expected Return	Standard Deviation
A	10.0%	15%
B	18.0%	30%

Find the proportion (weight) of A and B having minimum standard deviation.

- [10] a. Same as Problem 6, what is the standard deviation for this minimum standard deviation portfolio?
b. Same as Problem 6, what is the expected return of this minimum

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standard deviation portfolio?

8. [10] As derivative securities have become more important in today's financial environment, the correct pricing of them has drawn attention from researchers. Explain what is the "risk-neutral" valuation method? Does investor's risk aversion affect the valuation of derivatives? Explain.
9. [10] East Arkansas Copper Company has a mine that will produce a total of 75,000 pounds of copper: 25,000 pounds of copper at the end of the first year and 50,000 pounds of copper at the end of the second year. Extraction costs are always \$0.1 per pound. The current forward prices are \$0.65 per pound for a one-year contract and \$0.6 per pound for a two-year contract. The annually compounded risk-free rates are 5% for one-year zero-coupon bonds and 6% for two-year zero-coupon bonds. What is the present value of cash flows from the mine, assuming that payments for the mine are received at the end of each year?
10. [10] The main functions of futures market are price discovery, hedging, and speculative. Please state the main participators of the future market and their relationships with the main functions of futures markets.