國立台灣科技大學九十五學年度碩士班招生試題

系所組別：財務金融研究所碩士班

科　　目：財務管理

「總分 100 分」

1. (25%) Suppose that you are considering investing a portfolio of three assets. The basic statistics of the three assets are as follows:

	Asset 1	Asset 2	Asset 3
Expected Return	10%	20%	30%
Standard Deviation	30%	40%	50%
Correlation	1	-0.3	0
		1	0
			1

What is the optimal weight of each asset to minimize the risk of the portfolio given a required rate of return to be 25%?

2. (25%) Suppose there are two all-equity firms with the same profitability and adopting the same dividend policy forever. The only difference between them is their β s. All information needed is in the following table.

	Firm 1	Firm 2
β	0.5	-0.5
Return on equity	10%	10%
Dividend per share after one year	\$5	\$5
Plowback ratio	40%	40%
Expected market return	12%	
Risk-free interest rate	8%	

a. (15%) Calculate the current price per share of each firm. (Hint: the stock price today is the present value of future dividends)
b. (10%) Explain the economic meaning of why the firm with lower β will have a higher stock price.

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30分 3. NTUST-MBA Corporation is considering two alternative capital structures, one is aggressive and the other conservative. The aggressive strategy calls for D/A = 0.75, while the conservative capital structure calls for a D/A ratio = 0.25. Once the firm selects its target capital structure, it envisions two possible scenarios for its operations: Boom or Bust. The Boom scenario has a 60 percent probability of occurring and forecasted EBIT in this state is \$60,000. The Bust state has a 40 percent chance of occurring and expected EBIT is \$20,000. Further, if the firm selects the conservative capital structure its cost of debt will be 10 percent, while with the aggressive capital structure its debt cost will be 12 percent. The firm will have \$400,000 in total assets, it will face a 25 percent marginal tax rate, and the book value of equity per share under either scenario is \$10.00 per share. Please answer the following four questions based on the above information.

(a) What is the difference between the forecasted EPS for Boom and Bust under the aggressive capital structure? (6 points)
(b) What is the difference between the forecasted EPS for Boom and Bust under the conservative capital structure? (6 points)
(c) What is the coefficient of variation of expected EPS under the aggressive capital structure? (6 points)
(d) What is the coefficient of variation of expected EPS under the conservative capital structure? (6 points)
(e) If the government of Taiwan raises marginal tax rate to 30 percent from current 25 percent, what would be your answers to questions (c) and (d)? (6 points)

20分 4. ATC Company has a debt ratio of 33.33 percent, and it needs to raise \$100,000 to expand. Its CFO feels that an optimal debt ratio would be 16.67 percent. Current sales are \$750,000, and the total assets turnover is 7.5. How should the expansion be financed so as to produce the desired debt ratio? If some assets of ATC Company are allowed to be securitized, would the company's debt ratio be affected by the process of asset securitization? Why or why not? (20 points)