所別：財務金融學系碩士班 甲組(一般生)　科目：財務管理　共 2 頁 第 1 頁

本科考試禁用計算器　*請在試卷答案卷（卡）內作答

參考用

1. (30%) Here are some financial records for Company ABC:
Quantity sold = 100,000 units
Anticipated sales = $500,000
Total fixed cost = $75,000
Variable cost = $200,000
Total interest expenses = $75,000
Profit margin = 5%
Total debt = $200,000
Leverage ratio (debt to equity ratio) = 1/2
Shares of common stock outstanding = 10,000 shares
Current price per share = $40
Retention rate = 1/3

Please calculate the following questions:
(1) The break-even quantity (EBIT = 0)
(2) EAIT
(3) Total corporation income tax expenses
(4) The return on total equity
(5) The return on total asset
(6) The EPS.
(7) The P/E ratio for common stock.
(8) The pay-out ratio for dividend.
(9) Total asset turnover.
(10) Book-to-market ratio for the equity

2. (10%)

(1) 一個等比級數的首項為 a，公比為 r。試證明等比數級數的前 n 項合為 $\frac{a\left(1-r^n\right)}{1-r}$ 。

(2) 如果一家公司持續發放股利，且其股利維持一定的成長率。請推導如何利用 dividend discount model 得到公司股價為 $\frac{D_1}{k-g}$ 。請同時定義 D_1，k，g。

3. (10%)
Alpha Corporation and Beta Corporation are identical in every way except their capital structures. Alpha Corporation, an all-equity firm, has 10,000 shares of stock outstanding, currently worth $70 per share. Beta Corporation uses leverage in its capital structure. The market value of Beta's debt is $125,000, and its cost of debt is 12%. Each firm is expected to have earnings before interest of $175,000 in perpetuity. Both firm pay taxes at 40%. Assume that every investor can borrow at 12% per year.
(1) What is the value of Alpha Corporation?
(2) What is the value of Beta Corporation?
(3) Assuming the cost of capital of Alpha Corporation is 15%, what is Beta Corporation's weighted average cost of capital?

注意：背面有試題

參考用

4. (10%)
Suppose the current price of Gamma stock is $40 per share. In each of the next two months, the stock price will either increase by 30% or decrease by 20%. The risk-free APR is 6%. Calculate the price of a two-month American put options (which can be exercised at the end of each month) on Gamma stock with a strike price $50.

5. (20%)
Samsong Electronics has 10 billion shares outstanding, each of which has a price of $20. It would like to take over TSMD Corporation, which has 2 billion shares outstanding and a price per share of $50. They are both all-equity firms. Samsong believes that, TSMD is worth $150 billion under the new management team.

(1) Suppose Samsong announces to make a cash offer of $70 for 51% TSMD stocks. If the announcement comes to a completely surprise, and the market expects that the probability that the takeover will be successful is 80%, what is the announcement effect for TSMD? If you believe Samsong's analysis and you think the takeover will succeed with certainty, will you tender the 50,000 TSMD shares you own to Samsong?

(2) Suppose Samsong believes that a complete merger would be a good idea because the synergy will be $100 billion. If Samsong would like to make a stock offer, what is the maximum number of shares they can offer to exchange one share of TSMD without hurting their existing shareholders? If Samsong makes an offer with the exchange ratio of 3:1, and if the market believes Samsong's analysis and expects the merger will succeed with certainty, what are the announcement effects for TSMD and for Samsong?

6. (20%)
Please provide a numerical example to illustrate how a firm can use different financial instruments to manage exchange rate risk.