

國立東華大學財務金融系 105 學年度第 1 學期 財務管理 期末考

- ✧ 計算題務必寫出過程、使用千分位符號(,)以及小數點標示清楚
- ✧ 若題目沒有特別說明，請計算至小數點以下第 2 位，第 3 位四捨五入。表示方式如 1,234.56，78.09%。
- ✧ 滿分 120 分

1. (15分) Orange公司現在正考慮建構新的生產線的投資方案，這個生產線的機器設備將建在公司某個工廠內的閒置空間，公司去年花了\$700,000整理這個閒置空間。這個空間如果租給其他公司，每年可賺租金\$200,000(稅前)。機器設備購買成本為\$4,000,000，安裝和試車費用為\$500,000。公司尚須在計劃之初增加\$200,000的存貨、增加\$100,000的應收帳款，在同時應付票據也增加\$50,000。淨營運資金假設方案結束時全部回收。公司預計機器設備能使用3年，採直線折舊法，會計殘值為0，但是公司的生產部門認為該機器設備在3年後的市場價值為\$100,000。公司預估未來3年中，這台機器設備每年可以為公司帶來\$2,500,000的利潤（稅前折舊前利潤）。為了這個投資方案，公司必須舉債\$1,000,000，利息費用預估為\$50,000。公司稅率為40%。若資金成本為12%，請問此方案的淨現值 (NPV)=？該公司是否可採行此方案？為什麼？
2. (20分) The Blue Lakers公司正考慮以一較先進的機器重置其現有的生產機器。這一先進的機器之售價為\$800,000，另外需要\$200,000之安裝和試車費用，公司預計新機器能使用5年，採直線折舊法，5年後會計的殘值為0，然而公司的生產部門卻認為該機器在5年後的市場價值為\$80,000。公司的行銷部門預估未來5年中，將會為公司每年各帶來\$600,000的收入。公司的舊機器購於3年前，原先的成本為\$500,000，當初預計之壽命為5年，採直線折舊法，5年後殘值假設為0。今天公司的生產部門認為該舊機器從今天起尚能使用5年，5年後舊機器當廢鐵賣能售出\$10,000，此公司不會因此就改變原來預計的折舊過程。若今天賣掉此舊機器將可得到現金\$40,000。如果繼續使用舊機器，未來5年所產生的收入仍為\$600,000。但在用新機器後，新機器每年還會減少\$400,000的營運成本，除此之外，公司將必須增加\$20,000淨營運資金的投資，若稅率為40%，且稅後的資金成本為16%，則公司是否要執行此重置計畫？
3. (6分) Halliford Corporation expects to have earnings this coming year of \$3 per share. Halliford plans to retain all of its earnings for the next two years. For the subsequent two years, the firm will retain 50% of its earnings. It will then retain 20% of its earnings from that point onward. Each year, retained earnings will be invested in new projects with an expected return of 25% per year. Any earnings that are not retained will be paid out as dividends. Assume Halliford's share count remains constant and all earnings growth comes from the investment of retained earnings. If Halliford's equity cost of capital is 10%, what price would you estimate for Halliford stock?

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4. (6分) Assume there are four default-free bonds with the following prices and future cash flows:

Bond	Price Today	Cash Flows		
		Year 1	Year 2	Year 3
A	\$934.58	1000	0	0
B	881.66	0	1000	0
C	1,118.21	100	100	1100
D	839.62	0	0	1000

Do these bonds present an arbitrage opportunity? If so, how would you take advantage of this opportunity? If not, why not?

5. (9分) Anle Corporation has a current price of \$20, is expected to pay a dividend of \$1 in one year, and its expected price right after paying that dividend is \$22. (本題答錯倒扣)
- (1). (3分) What is Anle's expected dividend yield?
 - (2). (3分) What is Anle's expected capital gain rate?
 - (3). (3分) What is Anle's equity cost of capital?
6. (6分) Kenneth Cole Productions (KCP), suspended its dividend at the start of 2009 and as of the middle of 2012, has not reinstated its dividend. Suppose you do not expect KCP to resume paying dividends until July 2014. You expect KCP's dividend in July 2014 to be \$1.00 (paid annually), and you expect it to grow by 5% per year thereafter. If KCP's equity cost of capital is 11%, what is the value of a share of KCP in July 2012?
7. (9分) Sunny公司兩年前採行一個五年方案，當時經過財務經理評估後發現這個五年方案的第一年~第五年的現金流量分別是200,000、250,000、300,000、350,000、550,000且 $NPV > 0$ ，所以決定投資。不過現在財務經理發現若此時終止投資並處分資產，約可得1,000,000元，請問是否應終止投資？為什麼？假設資金成本為10%。
8. (12分) 假如今天是2017年1月1日，你打算在今天將\$10,000存入利率為12%的銀行帳戶，如果銀行 (1)每年複利一次，(2)每半年複利一次，(3)每季複利一次，(2)每月複利一次。根據以上四種情況，請算出你在2020年1月1日銀行帳戶中的本利和。並算出以上四種情況的有效年利率(EAR)。(本題答錯倒扣)

9. (8分) You would like to create a three-year synthetic zero-coupon bond. Assume you are aware of the following information: One-year zero-coupon bonds are trading \$0.95 per dollar of face value, two-year zero-coupon bonds are trading \$0.90 per dollar of face value, three-year zero-coupon bonds are trading \$0.87 per dollar of face value and three-year 10% coupon bonds (annual payments) are selling at \$1,200.26 (face=\$1,000) . Assume you can purchase a three-year 10% coupon bond and unbundle the four cash flows and sell them all.
- (1). (4分) How much will you receive from the sale of the four Treasury strips?
- (2). (4分) In this case, unbundle the three-year 10% coupon bond is a good idea? Why?
10. (9分) Orchid Biotech Company is evaluating several development projects for experimental drugs. Although the cash flows are difficult to forecast, the company has come up with the following estimates of the initial capital requirements and NPVs for the projects. Given a wide variety of staffing needs, the company has also estimated the number of research scientists required for each development project (all cost values are given in millions of dollars).

Project Number	Initial Capital	Number of Research Scientists	NPV
I	\$10	2	\$10.1
II	15	3	19.0
III	15	4	22.0
IV	20	3	25.0
V	30	12	60.2

- (1). (3分) Suppose that Orchid has a total capital budget of \$60 million. How should it prioritize these projects?
- (2). (3分) Suppose in addition that Orchid currently has only 12 research scientists and does not anticipate being able to hire any more in the near future. How should Orchid prioritize these projects?
- (3). (3分) If instead, Orchid had 15 research scientists available, explain why the profitability index ranking cannot be used to prioritize projects. Which projects should it choose now?

11. (20分) Web Cites Research projects a rate of return of 15 percent on new projects. Management plans to plow back 30 percent of all earnings into the firm. Earnings this year will be \$2 per share, and investors expect a 10 percent rate of return on the stock.
- (1). (4分) What are the growth rate, stock price, P/E ratio and the present value of growth opportunities?
 - (2). (2分) What would the price and P/E ratio be if the firm paid out all earnings as dividends?
 - (3). (2分) What do you conclude about the relationship between growth opportunities and P/E ratios?
 - (4). (2分) Now suppose that Web Cites Research projects a rate of return of 10% on new projects, earnings this year will be \$2 per share, and investors expect a 10 percent rate of return on the stock. Find the price and P/E ratio in these circumstances. Assume a 70% payout ratio.
 - (5). (3分) Please compare (2) and (4). Explain it.
 - (6). (3分) Now suppose that instead of plowing money back into investment projects, Web Cites Research's management is investing at an expected return on equity of 8 percent. Find the growth rate of dividends and earnings, the price and P/E ratio in these circumstances. Assume a 70% payout ratio.
 - (7). (4分) Find the new value of its investment opportunities. Explain why this value is negative despite the positive growth rate of earnings and dividends. If you were a corporate raider, would Web Cites Research be a good candidate for an attempted takeover? Why ?