

國立東華大學管理學院 109 第 1 學期 財務管理 第一次小考解答

1. V 我承諾此次考試絕對遵守考場規則 (以V方式回答，請務必回答此題並寫上系級學號姓名，考試結束連同答案卷一起交給助教)。

系級：

學號：

姓名：

2. (27分) 代理問題與公司治理。

- (1). (3 分) 誰是公司的所有權人？
- (2). (3 分) What does the phrase **limited liability** mean in a corporate context?
- (3). (3分) 為什麼公司(股份有限公司)可能會有代理問題 (本題答錯倒扣5分)？
- (4). (6分) 請解釋「特權消費 (perks)」與「建立王國 (empire building)」
- (5). (6 分) 為什麼「不是經理人的大股東」對公司治理機制有正面影響？並請說明公司治理中 free rider 的現象。
- (6). (6 分) What does the phrase **hostile takeover** mean? Are hostile takeovers necessarily bad for firms or their investors? Explain.

解答：

- (1). 股東。
- (2). 股東的責任有限，以出資額為限。
- (3). 公司的所有權與經營權分離 (本題答錯倒扣 5 分)
- (4). 「特權消費 (perks)」重點放在經理人著重個人利益享受，不必要的花費。「建立王國 (empire building)」重點放在經理人使公司的成長超越最適規模 (即 $NPV < 0$)。隨著可控制資源的增加，經理人的權力與報酬都會增加。
- (5). 「不是經理人的大股東」自身無法藉由經營公司獲利，且若公司經營不善，「不是經理人的大股東」會因為持有較多的股票因而受到較大的損失，所以其有「意願」也有「能力監督經理人」，對公司治理機制有正面影響。而原本無能力監督小股東會因為「不是經理人的大股東」的監督而成為公司治理的 free rider。
- (6). **hostile takeover** 為敵意接管 (寫惡意接管也可)，被併公司 (或目標公司) 的經理人不喜歡的接管。敵意接管不一定是壞的，若有敵意接管這種情況可以讓經理人為股東財富極大的利益著想。因為如果不為股東著想經營公司讓股價變低，那麼公司被敵意接管的可能性會大幅提升。They are a way to discipline managers who are not working in the interests of shareholders.

3. (15分) 假如Orange公司目前需要向外籌措資金來支應新的投資方案，決定使用舉債的方式。請利用「資訊不對稱」理論詳細說明市場投資人對於公司選擇這種融資方式的可能反應。

解答：

平均而言，公司若向市場宣告需要向外舉債來支應新的投資方案，會有顯著正向反應。因為根據信號發射理論，經由舉債來支應新的投資方案為釋放一強烈信號，表示經理人對此投資計畫有極大信心（相信這個投資方案前景看好，未來會持續有現金流入）。因為如果公司付不出利息，會導致公司倒閉，經理人丟失工作。所以經理人既然敢以舉債方式融資，能彰顯此投資方案的未來前景看好。(沒有寫到信號發射或是放信號至少扣一半的分數)

4. (10分) In early 2018, Adidas (ADS) had a book equity of \$1397 million, a price per share of \$24.68, and 69.52 million shares outstanding. At the same time, Nike (NKE) had a book equity of \$3000 million, a share price of \$41.86, and 422.62 million shares outstanding.
- (1). (4 分) What are market capitalization and the market-to-book ratio of each of these clothing retailers?
- (2). (6 分) What conclusions can you draw by comparing the two companies?

解答：

- (1). ADS's market capitalization = 1,715.75 million (沒寫單位扣一分)
market-to-book ratio = $(24.68 \times 69.52) / 1,397 = 1.23$.

NKE's market capitalization = 17,690.87 million (沒寫單位扣一分)
market-to-book ratio = $(41.86 \times 422.62) / 3,000 = 5.90$.

- (2). 從市值(market capitalization)來看，NKE 的公司規模大於 ADS 公司。For the market, the outlook of Adidas is less favorable than that of Nike. For every dollar of equity invested in ADS, the market values that dollar today at \$1.23 versus \$5.90 for a dollar invested in the NKE. Equity investors are willing to pay relatively less today for shares of ADS than for NKE because they expect NKE to produce superior performance in the future.

5. (10分) 財務槓桿

- (1). (4 分) 請問公司的財務槓桿 (leverage) 的意義為何？
- (2). (6 分) 一般會使用負債權益比率定義財務槓桿，為什麼負債權益比率的分子不應該包括應付帳款卻包含「一年內到期之長期負債」和「長期負債」？請問向「銀行短期借款」這個項目要不要納入負債權益比率的分子的計算？為什麼？

解答：

- (1). 公司融資來源依賴負債的程度。
- (2). 因為財務槓桿是用來衡量公司融資來源依賴負債的程度，應付帳款是公司營運就會產生的負債，屬於自發性負債，不是屬於公司融資來源故不被包含在負債權益比率的分子。而「一年內到期之長期負債」和「長期負債」是公司因為融資動機所產生的負債 (要付利息)，因此須納入。銀行借款的也是公司因為融資動機所產生的負債 (要付利息)，因此須納入。

6. (12分) You are analyzing the leverage of two firms and you note the following (all values in millions of dollars):

	Debt	Book Equity	Market Equity	EBIT	Interest Expense
Firm A	499.4	304.1	401.9	105.4	53.1
Firm B	83.1	32.7	41.9	7.8	7.3

- (1). (3分) What is the market debt-to-equity ratio of each firm?
- (2). (3 分) What is the book debt-to-equity ratio of each firm?
- (3). (3 分) What is the EBIT/interest coverage ratio of each firm?
- (4). (3 分) Which firm may have more difficulty meeting its debt obligations? Explain.

解答：

(1). Firm A: $\text{Market debt equity ratio} = \frac{499.4}{401.9} = 1.24$

Firm B: $\text{Market debt equity ratio} = \frac{83.1}{41.9} = 1.98$

(2). Firm A: $\text{Book debt equity ratio} = \frac{499.4}{304.1} = 1.64$

Firm B: $\text{Book debt equity ratio} = \frac{83.1}{32.7} = 2.54$

(3). Firm A: $\text{Interest coverage ratio} = \frac{105.4}{53.1} = 1.98$

Firm B: $\text{Interest coverage ratio} = \frac{7.8}{7.3} = 1.07$

- (4). Firm B has a lower coverage ratio and will have slightly more difficulty meeting its debt obligations than Firm A.

7. (12分) In December 2011, high-end retailer Nordstrom had an operating margin of 11.5% over the past year; Wal-Mart Stores had an operating margin of only 5.9%.
- (1). (2 分) 請說明 operating margin 的定義。
 - (2). (4 分) 公司之間 operating margin 的差異主要因為哪兩個原因？
 - (3). (6 分) 如果你是證券分析師，根據上述資訊，你認為 Wal-Mart Stores 的 operating margin 較其同業公司低的原因為何？

解答：

- (1). operating margin 的定義： $\text{Operating Income} \div \text{Sales}$ or 營業利潤 \div 營業收入
- (2). 經營效率性 (efficiency of operation) 與公司策略 (corporate strategy)。
- (3). Wal-Mart Stores 是因為公司策略為薄利多銷，希望透過較低的營業利潤率來增加銷貨的數量。每銷貨一單位的營業利潤雖然較低，但因為 Wal-Mart Stores 的銷貨量非常大，整體來看會讓公司的營業利潤增加。(若有同學有寫到 Wal-Mart Stores 因為是零售業，產品的需求彈性較大所以可以薄利多銷，則另外加五分)

8. (10分) Consider two securities that pay risk-free cash flows over the next two years and that have the current market prices shown here:

Security	Price Today (\$)	Cash Flow in One Year (\$)	Cash Flow in Two Years (\$)
B1	279	300	0
B2	255	0	300

- (1). (2 分) What is the no-arbitrage price of a security that pays cash flows of \$300 in one year and \$300 in two years?
- (2). (3 分) What is the no-arbitrage price of a security that pays cash flows of \$300 in one year and \$2700 in two years?
- (3). (5 分) Suppose a security with cash flows of \$150 in one year and \$300 in two years is trading for a price of \$390. What arbitrage opportunity is available?

解答：

- (1). This security has the same cash flows as a portfolio of one share of B1 and one share of B2. Therefore, its no-arbitrage price is $\$279 + \$255 = \$534$.
- (2). This security has the same cash flows as a portfolio of one share of B1 and nine shares of B2. Therefore, its no-arbitrage price is $\$279 + 9 \times \$255 = \$2,574$
- (3). There is an arbitrage opportunity because the no-arbitrage price should be $\$394.5 (= \$279 / 2 + \$255)$. One should buy two shares of the security at $\$260/\text{share}$ and sell one share of B1 and two shares of B2. Total profit would be $\$9 (-\$390 \times 2 + \$279 + \$255 \times 2)$.

9. (10分) Suppose that over the next year the economy is equally likely to strengthen or weaken. The risk-free bond has no risk and will pay \$1,100 whatever the state of the economy. The stock market index will pay investors \$1,400 if the economy is strong and \$800 if it is weak. Today, the market price of the risk-free bond is \$1,058 and the market price of the stock market index is \$1,000. Security A will pay investors \$600 if the economy is strong and nothing if it is weak.
- (1). (2 分) What is the risk-free rate?
 - (2). (2 分) The average payoff of the stock market index is the same as the risk-free bond.
Why the market price of the stock market index is lower than the risk-free bond?
 - (3). (6 分) What is the no-arbitrage price of security A? What is its expected return?
What is its risk premium?

解答：

(1). $\frac{\frac{1}{2} \times \$1100 + \frac{1}{2} \times \$1000}{1.058} - 1 = 4\%$

- (2). 因為理性經濟人是風險趨避者，所以若投資在風險性證券上預期要有風險溢酬為補償才願意購買，因此對股價指數會出價較低。(這裡的重點是風險趨避者和風險溢酬)
- (3). 231, 30%, 26%。計算過程如下：

TABLE 3A.2 Determining the Market Price of Security A (cash flows in \$)

Security	Market Price Today	Cash Flow in One Year	
		Weak Economy	Strong Economy
Risk-free bond	769	800	800
Security A	?	0	600
Market index	1000	800	1400

Therefore, the initial market price of security A is $\$1000 - \$769 = \$231$. If the price of security A were higher or lower than \$231, then the value of the portfolio of the bond and security A would differ from the value of the market index, violating the Law of One Price and creating an arbitrage opportunity.

Risk Premiums Depend on Risk

Given an initial price of \$231 and an expected payoff of $\frac{1}{2}(0) + \frac{1}{2}(600) = 300$, security A has an expected return of

$$\text{Expected return of security A} = \frac{300 - 231}{231} = 30\%$$

Note that this expected return exceeds the 10% expected return of the market portfolio. Investors in security A earn a risk premium of $30\% - 4\% = 26\%$ over the risk-free inter-

10. (14分) Suppose you started a Web site hosting business and then decided to return to school. Now that you are back in school, you are considering selling the business within the next year. An investor has offered to buy the business for \$200,000 whenever you are ready.
- Sell the business now.
 - Scale back the business and continue running it while you are in school for one more year, and then sell the business (requiring you to spend \$30,000 on expenses now, but generating \$50,000 in profit at the end of the year).
 - Hire someone to manage the business while you are in school for one more year, and then sell the business (requiring you to spend \$50,000 on expenses now, but generating \$100,000 in profit at the end of the year).
- (7 分) If the interest rate is 10%, which of the following three alternatives is the best choices? Why?
 - (7 分) If you need \$60,000 in cash now to pay for school and other expenses, would selling the business be a better choice in that case? Why?

解答：

- 必須要算出 NPV(如下圖 3.1) · 並提到選 NPV>0 且最大的 C 方案 (沒提到選 NPV>0 且最大的扣一半分數)。

TABLE 3.1		Cash Flows and NPVs for Web Site Business Alternatives	
	Today	In One Year	NPV
Sell Now	\$200,000	0	\$200,000
Scale Back Operations	-\$30,000	\$50,000 \$200,000	$-\$30,000 + \frac{\$250,000}{1.10} = \$197,273$
Hire a Manager	-\$50,000	\$100,000 \$200,000	$-\$50,000 + \frac{\$300,000}{1.10} = \$222,727$

(2). 現在賣掉公司不是好的選擇 (如下表 3.2)。仍維持選擇 C 方案。

TABLE 3.2

**Cash Flows of Hiring and Borrowing
Versus Selling and Investing**

	Today	In One Year
Hire a Manager	−\$50,000	\$300,000
Borrow	\$110,000	−\$121,000
Total Cash Flow	\$60,000	\$179,000
Versus		
Sell Now	\$200,000	\$0
Invest	−\$140,000	\$154,000
Total Cash Flow	\$60,000	\$154,000