

國立東華大學財務金融系 105 第 1 學期 財務管理 期中考

- ✧ 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. (10分) 財務槓桿

- (1). 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？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？
- (2). 統一超的應付帳款以及中保的預收款項很高，這被認為是好的負債，請解釋可能原因。

2. (10分) In December 2011, high-end retailer Nordstrom (JWN) had an operating margin of 11.5% over the past year; Wal-Mart Stores (WMT) had an operating margin of only 5.9%.

- (1). 請說明 operating margin 的定義和用途。
- (2). 如果你是證券分析師，根據上述資訊，你認為 Wal-Mart Stores (WMT) 的 operating margin 較其同業公司低的原因為何？

3. (10分) In July 2012, Citigroup (C) had a market-to-book ratio of 0.43, a reflection of investors' assessment that many of Citigroup's assets (such as mortgage securities) were worth far less than their book value. At the same time, the average market-to-book ratio for major U.S. banks and financial firms was 1.2.

- (1). 請說明 market-to-book ratio 的定義和用途。
- (2). 為什麼以 market-to-book ratio 評價需要與同業相比較？

4. (12分) 請說明資訊不對稱的定義、類型與解決之道。

5. (8分) 代理問題

- (1). (3 分) 誰是公司的所有權人？
- (2). (5 分) 為什麼公司(股份有限公司)會有代理問題？

6. (8分) You run a construction firm. You have just won a contract to construct a government office building. Constructing it will take one year and require an investment of \$10 million today and \$5 million in one year. The government will pay you \$20 million upon the building's completion. Suppose the cash flows and their times of payment are certain, and the risk-free interest rate is 10%.

- (1). What is the NPV of this opportunity?
- (2). How can your firm turn this NPV into cash today?

7. (9分) An Exchange-Traded Fund (ETF) is a security that represents a portfolio of individual stocks. Consider an ETF for which each share represents a portfolio of two shares of Hewlett-Packard (HPQ), one share of Sears (SHLD), and three shares of General Electric (GE). Suppose the current stock prices of each individual stock are as shown here:

Stock	Current Market Price
HPQ	\$28
SHLD	\$40
GE	\$14

- (1). What is the price per share of the ETF in a normal market?
 - (2). If the ETF currently trades for \$120, what arbitrage opportunity is available?
What trades would you make?
 - (3). If the ETF currently trades for \$150, what arbitrage opportunity is available?
What trades would you make?
8. (4分) You work for a pharmaceutical company that has developed a new drug. The patent on the drug will last 17 years. You expect that the drug's profits will be \$2 million in its first year and that this amount will grow at a rate of 5% per year for the next 17 years. Once the patent expires, other pharmaceutical companies will be able to produce the same drug and competition will likely drive profits to zero. What is the present value of the new drug if the interest rate is 10% per year?

9. (9分) Your grandfather put some money in an account for you on the day you were born. You are now 18 years old and are allowed to withdraw the money for the first time. The account currently has \$3996 in it and pays an 8% interest rate.
- (1). How much money would be in the account if you left the money there until your 25th birthday?
 - (2). What if you left the money until your 65th birthday?
 - (3). How much money did your grandfather originally put in the account?
10. (12分) Suppose that over the next year the economy is equally likely to strengthen or weaken. A risk-free bond has no risk and will pay \$1100 whatever the state of the economy, and the no-arbitrage price of this bond is \$1058. A market index will pay investors \$1400 if the economy is strong and \$800 if it is weak, and the no-arbitrage price of this market index is \$1000.
- (1). (2 分) What is the risk-free rate?
 - (2). (4 分) What is the expected return of the market index? What is its risk premium?
 - (3). (2 分) Why the price of the market index is lower than the risk-free bond? They both pay \$1100 on average.
 - (4). (4 分) Suppose that Security A will pay investors \$600 if the economy is strong and nothing if it is weak. What is the no-arbitrage price of security A? If the market price of Security A is \$240, what arbitrage opportunity would be available?
11. (10分) Use the table for the question(s). Suppose that over the next year the economy is equally likely to strengthen or weaken. Security A will pay investors \$840 if the economy is strong and nothing if it is weak. Security B will pay investors \$840 if the economy is weak and nothing if it is strong. Today, the market price of security A is \$350 and security B is \$450.

Security	Market Price	Cash Flow in One Year	
	Today	Weak Economy	Strong Economy
A	350	0	840
B	450	840	0
C	???	840	4200

- (1). (2 分) What is the risk-free rate?
- (2). (2 分) What is the expected return of security A? What is its risk premium?
- (3). (2 分) What is the expected return of security B? What is its risk premium?
- (4). (4 分) Suppose that security C will pay investors \$840 if the economy is weak and \$4200 if it is strong. And security C has a risk premium of 30%. What is the no-arbitrage price of security C? What arbitrage opportunity would be available?

12. (18 分) Apple 公司現在買轎車一部，總價 \$2,500,000，除支付頭期款 \$500,000，剩餘金額辦理定額分期付款，第一筆錢於一年後開始支付，分 5 年本利平均償還(每年付款一次)，利率 10%，每年須付多少？並作分期付款攤銷表。(四捨五入至整數位，表頭範例如下)

期數	期初餘額	每期償還	利息部分	本金部分	期末餘額
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