# FINM7409 Financial Management for Decision Makers

## Final Exam, Semester 1, 2021

**Exam duration:** 2 hours + 10 minutes reading + 15 minutes submission

**Instructions:**

Once you have completed the exam, upload the completed exam answers file **in ONE PDF** document to the Blackboard assignment submission link.

You may choose to either type your response OR hand write and scan-to-pdf your response.

**Problem 1 (8 marks)**

**Part A (2 marks)**

What is the future value of the following investments?

a. $2000 invested for 5 years at 10% compounded annually
b. $5000 invested for 7 years at 8% compounded annually

**Part B (2 marks)**

After researching various car loan products, you have found that you can borrow from either Commonwealth Bank or Westpac Bank. Commonwealth Bank is offering a borrowing rate of 10.5% compounded monthly, while Westpac Bank is offering 11% compounded semi-annually. Which bank offers the better rate?

**Part C (2 marks)**

Don has signed a contract that will pay him $60,000 at the end of each year for the next five years, plus an additional $100,000 at the end of year 6. If the appropriate discount rate is 7%, what is the present value of this contract?

**Part D (2 marks)**

Susan would like to have $1.5 million at the time of her retirement in 30 years by making a single investment today. If the investment can earn 5% annually, how much will Susan have to invest today? Given the same amount of investment today, what if Susan has identified an investment that earns 10% annually, how soon could she retire?

**Problem 2 (10 marks)**

**Part A (6 marks)**

Koch Limited is about to replace its existing fleet of diesel trucks with electric ones. The new electric truck will cost $100,000 and has a useful life of 10 years, at which time the truck will be worthless. However, Koch Limited has the practice of replacing its fleet every 5 years, and expects to sell the electric truck for $30,000 then. Due to the efficiency of the new truck, the company expects to generate additional $20,000 revenue per year over the next five years. Additionally, the fuel and maintenance costs for the electric truck are $5,000 lower each year than diesel truck. Assume straight-line depreciation and a discount rate of 10% and ignore tax. Calculate

a. The accounting rate of return of the new electric truck.
b. The payback period for the new electric truck.
c. The net present value of the new electric truck.

**Part B (4 marks)**

CSL is considering the expansion of its COVID-19 vaccine production due to high demand. The new production facility is expected to cost $300 million and will be ready for production immediately. CSL predicts that the pandemic will end after another 3 years, and there will be no more demand for the COVID-19 vaccine. However, CSL will be able to sell the production facility to a flu vaccine company for $120 million after 3 years. The following income statements summarise the forecast for the COVID-19 vaccine production:

| | 1st year ($m) | 2nd year ($m) | 3rd year ($m) |
|---|---|---|---|
| Sales | 150 | 120 | 80 |
| Costs (including depreciation) | 110 | 90 | 60 |
| Profit before tax | 40 | 30 | 20 |

Depreciation has been calculated on a straight-line basis. You should assume that all cash flows occur at the end of the year in which they arise. The company's cost of capital is 10%. Ignore taxation.

a. Calculate the NPV for this project. Should the company invest? Why?
b. Without calculation, is the internal rate of return (IRR) higher or lower than 10%? Explain briefly

**Problem 3 (12 marks)**

**Part A (2 marks)**

What is a zero coupon bond? And how does investor profit from buying one?

**Part B (2 marks)**

List two factors that affect the yield to maturity of a bond. Explain briefly.

**Part C (2 marks)**

Cardinal Investment is buying a 90-day bank bill today. The bill still has 50 days until maturity. The face value of the bill is $100,000. If the current market yield on this bill is 3% per annum, what is the price of the bill today?

**Part D (3 marks)**

Lion Ltd has just issued a bond with 5-year maturity and a face value of $1,000. The coupon rate is 6%, paid annually. Assume the required yield to maturity is 8%.

a. What is the bond price?
b. If the yield to maturity drops to 5%, what is the bond price?

c. If the bond pays coupon semi-annually instead (assume yield to maturity is 8%), what would be the price of the bond?

**Part E (3 marks)**

Electronicca is an electric car start-up and growing rapidly. The company has just paid a dividend of $2 per share. Dividends are expected to grow at a rate of 30% over the next five years, with the growth rate falling off to a constant 5% thereafter. If the required return is 12%, what is the current share price?

**Problem 4 (10 marks)**

**Part A (2 marks)**

You have bought one Microsoft share a year ago at $185. Over the year, Microsoft has paid dividend of $2.24 per share. If the current share price is $255, what is your return over the year?

**Part B (2 marks)**

If the volatility (standard deviation) of company A is higher than company B, then the beta for company A must be higher than the beta for company B. Is this statement correct? Explain your answer.

**Part C (4 marks)**

Consider the following information:

| State of economy | Probability | Rate of return if state occurs | | |
|---|---|---|---|---|
| | | Firm A | Firm B | Firm C |
| Boom | 0.10 | 30% | 45% | 30% |
| Good | 0.50 | 11% | 10% | 17% |
| Poor | 0.30 | 2% | 2% | -5% |
| Burst | 0.10 | -12% | -25% | -9% |

a. Your portfolio is invested 25% in A and B, and 50% in C. What is the expected return of the portfolio?
b. What is the standard deviation of the portfolio?

**Part D (2 marks)**

Newstead Brewery Ltd has an expected return of 11.2%, the risk-free rate is 3.5%, and the market risk premium is 6.5%. What is the beta for the company?

**Problem 5 (10 marks)**

**Part A (2 marks)**

Why do we use an after-tax figure for cost of debt but not for cost of equity in calculating WACC?

**Part B (4 marks)**

Brookfield Railway Ltd has 4 million shares outstanding with a current share price of $15, and the book value per share is $10. Brookfield also has two bond issues outstanding. The first bond issue has a face value of $20 million, a coupon rate of 5.0%, a yield to maturity of 5.4% and sells for 97% of par. The second issue has a face value of $30 million, a coupon rate of 5.5%, a yield to maturity of 5.0% and sells for 102% of par. The first issue matures in 10 years, while the second in 5 years. Assume the cost of equity is 12% and a tax rate of 30%.

a. What is the company's capital structure?
b. What is the company's WACC? The overall cost of debt is the weighted average of the two outstanding bonds.

**Part C (2 marks)**

Modigliani and Miller capital structure theorem states that firm value is not affected by the capital structure. Does this mean cost of equity and cost of debt remain the same with different level of leverage? Explain your answer.

**Part D (2 marks)**

HP Electronic Ltd can borrow at 6.0%, but currently has no debt. The cost of equity is 12.5%. The current value of the firm is $500,000. What will be the value of equity if HP Electronic borrows $300,000 and uses the proceeds to pay dividends? Assume perfect capital market.