

**BFF2140 Corporate Finance 1**  
**Individual Assignment**  
**Trimester A 2020**  
**Due Date: Monday 25th May by 12 pm**

**Q. 1 Capital Budgeting and Investment Decision (5+3+5+2 = 15 marks)**

Artiss Ltd is faced with choosing between two mutually exclusive projects with differing lives. It requires a return of 12% on these projects. Project A requires an initial outlay at time 0 of \$5,000,000 and is expected to require annual maintenance cash outflows of \$3,100,000 per year over its two-year life. Project B requires an initial outlay at time 0 of \$6,000,000 and is expected to require annual maintenance cash outflows of \$2,600,000 per year over its three-year life. Both projects are acceptable investments and provide equal quality service. The company assumes that the replacement and maintenance costs for both projects will remain unchanged over time.

- (a). Find the *NPV* of each project over its life.
- (b). Which project would you recommend based on your finding in part (a)? Are you confident you're your finding? What can wrong with choosing the best project based on its *NPV*?
- (c). If you have any doubt regarding your selection in part (b), then apply an alternative method to compare the two projects.
- (d). Which project would you recommend based on your finding in part (c)? Compare and contrast this recommendation with the one you gave in part (b).

**Q.2 Capital Budgeting and Investment Decision (5x2 = 10 marks)**

(a) What is the only relevant decision for independent projects if an unlimited capital budget exists? How does your response change if the projects are mutually exclusive? How does your response change if the firm faces *capital rationing*?

(b) Differentiate between *sunk costs* and *opportunity costs*. Which of these costs should be included in incremental cash flows, and which should be excluded?

**Q. 3 Share Valuation (5+15 = 20 marks)**

(a) Are Share Returns Predictable? If share prices move unpredictably, does this mean that investing in shares is just gambling? Why or why not?

(b) Go-Flex Corporation is considering going public but is unsure of a fair offering price for the company. Before hiring an investment banker to assist in making the public offering, managers at Go-Flex have decided to make their own estimate of the value of the company's ordinary shares. The company's CFO gathered the following data for performing the valuation using the free cash flow valuation model.

The company's weighted average cost of capital is 12 %. It has \$1,400,000 of debt at market value and \$500,000 of preferred equity at its assumed market value. The estimated free cash flows over the next five years, 2016 to 2020, follow. Beyond 2020, to infinity, the company expects its free cash flow to grow by 4 % annually.

**Year    Free Cash Flow**

|      |           |
|------|-----------|
| 2016 | \$250,000 |
| 2017 | \$290,000 |
| 2018 | \$320,000 |
| 2019 | \$360,000 |
| 2020 | \$400,000 |

- Estimate the value of Go-Flex Corporation's entire company by using the free cash flow approach.
- Use your finding in part (a), along with the data provided above, to find Go-Flex Corporation's ordinary share value.
- If the company plans to issue 220,000 ordinary shares, what is its estimated value per share?

**Q. 4 Risk and return****(5+15=20 marks)**

- Which type of company do you think will have a higher beta: a fast-food chain or a cruise-ship firm? Why?
- Currently the risk-free rate equals 5% and the expected return on the market portfolio equals 11%. An investment analyst provides you with the following information:

| Share | Beta | Expected Return |
|-------|------|-----------------|
| A     | 1.33 | 12%             |
| B     | 0.70 | 10%             |
| C     | 1.50 | 14%             |
| D     | 0.66 | 9%              |

- Indicate whether each share is overpriced, underpriced, or correctly priced.
- For each share, subtract the risk-free rate from the share's expected return and divide the result by the share's beta. For example, for asset A this calculation is  $(12\% - 5\%) \div 1.33$ . Provide an interpretation for these ratios. Which share has the highest ratio and which has the lowest?
- Show how a smart investor could construct a portfolio of shares C and D that would outperform share A.
- Construct a portfolio consisting of some combination of the market portfolio and the risk-free asset such that the portfolio's expected return equals 9%. What is the beta of this portfolio? What does this say about share D?
- Divide the risk premium on share C by the risk premium on share D. Next, divide the beta of share C by the beta of share D. Comment on what you find.

**Q.5 Risk and return****(25 marks)**

Pick a company and download share prices and index data (Yahoo! Finance is a good source for this.) Then compute total risk by converting their price series into a return series by calculating  $\text{return}_t = (P_t - P_{t-1})/P_{t-1}$ . Calculate the mean, standard deviation and coefficient of variation of returns for the share using the data they have collected.

Calculate beta by regressing the share's returns on the returns to the index chosen. Look up the company's real beta – there are many online sources for this. Compare published betas to the calculated beta. Why are they different? What difference does time period make?